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ABSTRACT

Proceedings of the third of three workshops held in conjunction with the development of thirty-four core curriculum modules for vocational teacher education are presented. Included are five workshop presentations: (1) "An Overview of the Movement for Competency-Based Vocational Instruction (CBI)," by Glen Fardig; (2) "The Nature and Characteristics of Individualized Instruction," by Sandra W. Miller; (3) "Preparing Teachers to Install and Manage Competency-Based Vocational Programs," by Glen Fardig; (4) "Performance-Based Teacher Education Materials from the Center for Vocational Education," by Glen Fardig; and (5) "Review of the Vocational Education Curriculum Materials," by Terry Newell. In the appendixes are the following: program agenda; check list for review and evaluation of CBI materials; workshop evaluation form; a list of vocational teacher professional competencies essential to installing and conducting CBI; an annotated bibliography of CBI (Primary Version); a bibliography of recent curriculum materials for professional vocational teacher education; transparency masters used in the workshop presentations; and a list of workshop participants. (Proceedings of the other two workshops are CE 018 935-936; the core curriculum modules developed are CE 018 938-971). (JH)

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COMMON

CORE

CURRICULUM # III

for Vocational Education

PROCEEDINGS

COMMON CORE CURRICULUM WORKSHOP III

Airport Marina Hotel, Fresno

November 17, 18, 1977

CE 018 937

U.S. DEPARTMENT OF HEALTH,
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COMMON CORE CURRICULUM

Introduction

Many curriculum materials have been developed with U.S. Office of Education funds - either as direct grants or through contracts with State Departments of Education. During the fall of 1977, a grant was made available to California State University, Fresno, through the California State Department of Education for the specific purpose of convening all college and university vocational teacher educators and providing them with the opportunity to review and analyze available competency-based curriculum materials. Materials selected were applicable to four vocational services: agriculture, business, home economics, and industrial education. Each workshop participant reviewed and evaluated at least four pieces of material. The results of the review are included in this report.

This in-service meeting also included three presentations on very current educational topics by recognized national vocational education leaders. Topics included the "Nature and Characteristics of Individualized Instruction", "An Overview of the Movements for Competency-Based Vocational Instruction" and "Preparing Teachers to Install and Manage Competency-Based Vocational Programs".

Bibliographies and illustrative material for presentations in Competency-Based Instruction were shared with the group. These will be found in the Appendices.

The Common Core Curriculum project (1975-1977) has included the following phases:

- identification of common core components of vocational education (1975),
- organization of components into instructional modules (1975-1976),
- development and field testing of competency-based modules (1976-1977),
- review of current CBI curriculum materials (1977), and
- development of five administrative and superisory modules (1977).

Plans for dissemination and infusion of these materials into the vocational teacher education programs at the California State Colleges and Universities is included in the last phase of the project.

Proceedings of the workshops held in connection with the project are available from:

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AN OVERVIEW OF THE MOVEMENT FOR COMPETENCY-BASED VOCATIONAL INSTRUCTION

by Glen Fardig, Ph.D.

There is a great and increasing interest in competency-based instruction (CBI) in occupational programs all over the country. There is probably no other single idea that is capturing greater attention and engaging more of the efforts of vocational educators than this one. It appears that a fundamental change is occurring in the way vocational programs are being developed and organized.

Exemplary vocational programs using the competency-based approach can be found in many geographic areas and in a great range of educational settings.

- Sanford, North Carolina schools have been pioneers in using CBI in secondary vocational programs and have now extended the CBI approach to grades K through 12.
- Skyline Career Development Center, Dallas, Texas, has won national recognition for its program and for the competency-based instructional materials it has developed.
- Surburban Hennepin County (Minneapolis), Minnesota, has two technical centers that are models of program planning and management for utilizing CBI.
- The Commonwealth of Kentucky has committed itself to having all its vocational programs competency-based, and is well on its way to achieving this goal.
- In Hasting, Nebraska, Central Technical/Community College is fully implementing the competency-based approach, one of the first two-year colleges to do so.

- The West Virginia Vocational Curriculum Laboratory is developing competency-based instructional material that has earned the respect of educators in many states.
- In the southeast, Carrollton, Georgia, has been a leader in competency-based occupational education.
- Schools and community colleges in Texas, Vermont, Ohio, Florida, and Minnesota are now operating with competency-based programs.

A great number of other schools and school systems are in various stages of development of CBI programs. Some schools are just becoming aware of CBI, others are in the planning stage, and some are ready for full-scale implementation. The work is going ahead vigorously, and with enthusiasm.

In spite of the enthusiasm, the results of the work are uneven. Many curriculum developers in vocational education have incomplete notions of CBI, equating, for example, the use of modules with competency-based instruction. Some programs now getting under way have severe deficiencies, particularly in the area of student performance assessment. There is much yet to be done.

It is good to be able to report that occupational training programs and vocational schools are taking a leading role in the movement toward competency-based instruction. While CBI is being talked about among many subject-matter specialists, vocational educators are actively installing and operating functional programs.

There is good reason for this. The basic principles involved in CBI are not foreign to vocational education. For example, focusing training on skills that workers need, and using trainee performance as a basis for assessment have been characteristics of vocational training for a long time. What is new is the systematic and thorough way all these instructional elements have been put together.

Then too, programs for teaching technical skills are usually more readily structured for CBI than are many academic programs. It is easier to determine, for example, when a welding student has performed up to standard and produced a sound weld than it is to tell whether a student has written a good essay. It is to the credit of vocational educators that they are capitalizing on these advantages.

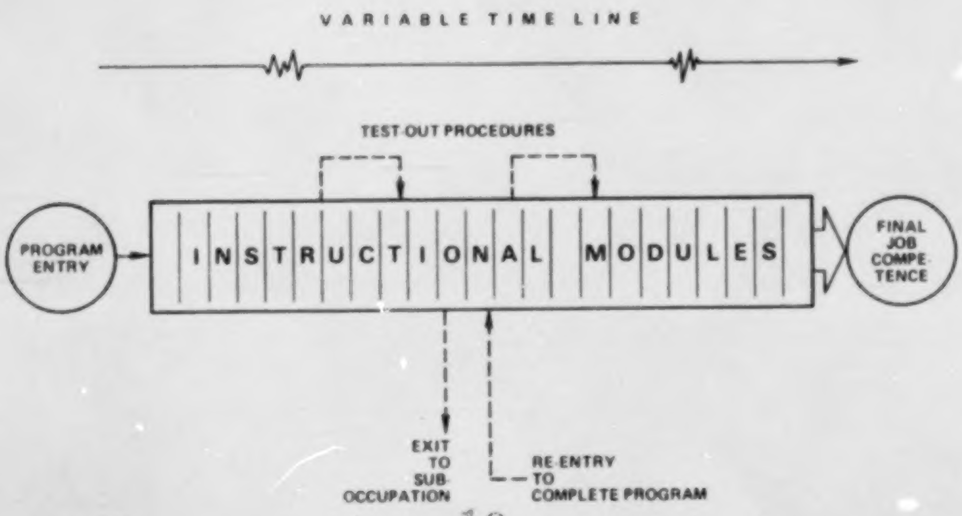
It might be wise here to review some of the basic principles and practices of competency-based instruction. Most educators would agree with the statements that follow, even though it would probably be difficult to find many training programs that embody every one of the concepts.

1. The competencies that students are asked to achieve come from some form of analysis of tasks performed by incumbent workers. They are not simply the ideas of a textbook author or the whim of the instructor. The competencies are described to students in advance of instruction.
2. The instructional program is specifically directed to help students achieve the competencies or skills. Little or nothing is presented because it is "interesting", or "nice to know". In many ways, instruction is more rigorous than in conventional programs.
3. Students move through the program by demonstrating that they have achieved the competencies, and the rate of progress may vary considerably depending on the ability and interest of the student. It is not enough for the student simply to complete a series of courses or put in a certain number of clock hours in class.

4. Students are required to perform in some way to prove they have acquired the skill. The performance conditions and standards are those the beginning worker might be expected to meet on the job. Paper and pencil tests are not appropriate (unless, of course, the student is learning a paper and pencil skill).
5. Assessment of student performance is based on predetermined criteria, and it must be as objective as possible. Assessment takes place when the student is ready for it, not at the convenience of the instructor's schedule.
6. The instructor uses criterion-referenced measures of assessment. Evaluation of students is not based on a comparison with others. Use of the so-called "Normal Curve" is abandoned.

In order to organize all the concepts and characteristics into a functioning program, it is logical to individualize and modularize the instructional system. Note, however, that competency-based instruction can be delivered in a traditional lecture/demonstration setting, with some loss of flexibility and efficiency. A model of a competency-based program is shown in graphic terms below.

MODEL OF COMPETENCY-BASED VOCATIONAL PROGRAM


VARIABLE TIME LINE
TEST-OUT PROCEDURES
PROGRAM ENTRY
INSTRUCTIONAL MODULES
FINAL JOB COMPETENCE
EXIT TO SUB-OCCUPATION
RE-ENTRY TO COMPLETE PROGRAM

The evidence is persuasive; if competency-based programs are thoroughly planned and implemented, applying the best principles, the approach holds great promise for the improvement of vocational education.

1. There is increased relevance of instruction to the needs of vocational students. They can more easily see the purpose of training, and they are far more aware of the progress they are making.
2. There can be greater efficiency of training. Students learn those skills they need in order to enter the occupation . . . neither more nor less. Students take only the time they need to become proficient . . . and there is evidence that many can learn in less time than we had previously thought possible.
3. Better trained workers can result. There is greater assurance that students who complete the program will be able to function successfully on the job. The student's general competence will not obscure the need for competence in each specific occupational skill.
4. Training programs can be kept current and effective. Program improvement is built into the CBI system. Student achievement (or lack of it) is readily observable, and so the feedback from student performance can be used to improve instruction.

These gains in relevance, efficiency, and effectiveness will, however, be realized only if instructors are properly prepared. The change to CBI has direct implications for vocational instructors in the classroom and laboratory. Teacher educators should be aware of the effects CBI will have on the teachers with whom they will be working.

Competency-based instruction demands new outlooks on the part of the teacher. If CBI is to achieve its potential, the teacher needs to accept individualization of instruction and provide opportunity for students with varying learning styles and rates. There is, thus, a need for greater flexibility on the part of the teacher, and the ability to extemporize. A new outlook, and one that is difficult for many, is required in order for the teacher to assume the new role of resource person rather than lecturer/examiner.

CBI also places increased demands on the managerial skills of the teacher. Organizing the classroom and laboratory to facilitate the variety of learning activities that take place in the CBI approach may be very complex. Managing individual performance assessment of students continues to be a problem for teachers, and one that must be solved if CBI is going to succeed.

Developing the competency-based curriculum and its instructional materials is a difficult and time-consuming task, so teachers will need a great deal of help in accomplishing this. Teacher educators, as well as curriculum specialists, are needed to help do the task analyses, write instructional materials, and devise assessment procedures. With this help, the teacher will be able to do what he or she does best . . . teach.

It becomes quite apparent that the change to CBI in secondary and postsecondary vocational programs has important implications for teacher education in the university. The special needs of teachers to develop, install, and manage CBI cannot long be ignored. There are three major areas in which professional teacher educators should take responsibility.

1. Teacher educators should cooperate with schools in their efforts to redesign the vocational curriculum along competency-based

lines. There is a great need for educators who can design curricula and develop individualized instructional materials. This calls for educators who have a thorough understanding of the CBI approach, both in theoretical terms and in practical application in secondary and postsecondary schools.

2. In-service teachers need to be trained to make the transition to CBI. In areas where schools are preparing to install the competency-based approach, this need is urgent.
3. Preservice vocational teachers need to be prepared to enter programs based on CBI. They must be given the new skills required to manage such programs.

CBI has become a major force in vocational education today. Teacher educators, with their background of education experience and expertise, should take an active and a leading role in the development of competency-based instruction in vocational education. Up to this point, they have too often simply reacted to the leadership of others. If the teacher education profession does not respond, local and state agencies will tend to look elsewhere for the help they need.

This is an exciting time in vocational education. The challenge of CBI, if taken up with enthusiasm, can result in more responsive schools, better trained workers, and more effective teachers.

THE NATURE AND CHARACTERISTICS OF INDIVIDUALIZED INSTRUCTION

by Sandra W. Miller, Ph.D.

The "Fable of the Activity Curriculum" illustrates what can happen in an educational system where there is no concern for individual differences.

FABLE OF THE ACTIVITY CURRICULUM[1]

> Once upon a time, the animals decided they must do something to meet the problems of "the new world," so they organized a school. They adopted an activity curriculum consisting of running, climbing, swimming and flying, and, to make it easier to administer, all the animals took all subjects.
>
> The duck was an excellent student in swimming, better, in fact, than the instructor, and made passing grades in flying, but he was very poor in running. Since he was slow in running, he had to stay after school and also drop swimming to practice running. This was kept up until his web feet were badly worn and he was average in swimming. But average was acceptable in school, so nobody worried about that except the duck.
>
> The rabbit started at the top of the class in running, but had a nervous breakdown because of so much makeup work in swimming.
>
> The squirrel was excellent in climbing until he developed frustration in the flying class where his teacher made him start from the ground up, instead of from the treetop down. He also developed charlie horses from overexertion and then got C in climbing and D in running.
>
> The eagle was a problem child and was disciplined severely. In climbing class he beat all others to the top of the tree, but insisted on using his own way to get there.
>
> At the end of the year, an abnormal eel that could swim exceedingly well, and also run, climb and fly a little, had the highest average and was valedictorian.

The purpose of this presentation is to identify the components of educational programs that respect individuality. Illustrations of each component will be given.

What is Individualized Instruction?

Individualized instruction is an attempt to get learning theory in harmony with the individual differences of students. We have known for years there is an interaction between the learning format and the ability, interest, and personality of students. The objective of individualized instruction is to organize a program so that each student can learn at his/her own pace and level and in a manner that takes into consideration his/her unique abilities, previous learnings, interests and needs. Individualized instruction tries to offer the student several different options so that it will be possible to select the learning program that will maximize learning for each individual student. Indeed, some say failure to provide for individual differences is the greatest source of inefficiency in education.

Ideally, we should be able to design a different set of experiences for every student. This impracticality is obvious, but at least individualized instruction is an important step in that direction. In any case, students have many common needs, as well as differences, which must be accommodated. The task in accommodating common needs and unique differences is more manageable and viable. Group work is normal. Some programs start with common concepts and then students pursue individual topics or activities.

Types of Individual Differences

We must be aware of the various kinds of differences that exist so that we can deal with them orderly.

Personality Variables

Common sense tells us that personality traits have a marked influence on how students react to various kinds of instruction, but many research studies also support this conclusion. For example, students who are flexible in their thinking and who are able to cope with ambiguity and inconsistency seem best able to profit from the give-and-take of class discussion and/or problem-solving situations. On the other hand, students who seek definite and concrete patterns of thinking and who see themselves in stereotyped ways tend to be more comfortable in more highly teacher-centered and specifically directed kinds of activities. Students having a strong interest in social acceptance have been found to perform poorly with programmed instruction, while learners who appear to be more withdrawn, less self-reliant, and more test-anxious perform successfully with it.[2] A study of a group of 16-year-olds confirms that extroverts seem to learn best with unstructured materials and situations such as the "discovery method", whereas introvert-type students seem to learn best with structured and prompted learning situations.[3]

Cognitive Variables

Individual differences dealing with knowledge, perception and understanding of material have been studied fairly extensively. These studies have typically shown contradictory results. The one result that has been consistent, however, is that individuals learn at different paces or speeds. Among other things, this relates to their previous experiences.

From this discussion on types of individual differences, we can conclude that we need to individualize by content, presentation technique, and rate of delivery. Let us now study the process to do this.

Learning Objectives

The first step in developing individualized instruction, as in any instructional program, is to write learning goals. This can be a challenging skill to acquire if the learning goals are to be written in behavioral terms. Almost anyone can write abstract goals as "learning to write curriculum" or "knowing principles of learning". The risk in abstract goals is that they are vague as to exactly how the student's behavior will be changed as a result of the learning experience. This vagueness means that we will be unclear about the kind of learning experience that should be designed to achieve the goal.

EXAMPLE

NOT THIS	Knows principles of learning
BUT THIS	States three principles of learning and gives an illustration of each

Test yourself to see whether you can recognize which statement in each pair is expressed in terms of student behavior.

EXAMPLE I

A. The student will understand how to write test items.

B. The student will construct a test item which measures a given objective.

EXAMPLE II

A. The student will comprehend individual differences.

B. The student will identify and describe three types of individual differences which should be considered in designing programs for individualized instruction.

Obviously, the "A" statement in each example is expressed in vague, abstract terms. We cannot tell what it is that the student is supposed to do to achieve the learning goal. The "B" statements tell exactly what the student will be able to do.

Pre-entry Behavior

Once behavioral objectives are formulated, assessment of where a student is in relation to them can be determined. This is the next step in the individualized instruction process. There are three possible sources of information to use when assessing student competency. The first is conferences with the student's former instructors, the second is a work sample test, and the third is paper-pencil pre-tests. Let us explore each of these possibilities in more detail.

Student's Former Instructor(s).

A checklist is useful as a guideline when interviewing a student's previous instructor(s). The checklist can contain examples of the learning behavior you want to assess. For instance, you may want to ask what materials the student has used or you may want to list specific difficulties the student has experienced.

Work Sample Test.

Instead of depending on the judgment of the student's former instructor(s), you may decide to observe for yourself how the student performs. This could simply involve asking the student to thread a projector or prepare a daily lesson plan. Another possibility in this area is requesting that the student bring in certain assignments he/she has completed in other classes.

Paper-pencil Pre-test.

A series of objective and subjective style questions can be used to determine student readiness. Once the instrument is prepared, a student's high and low levels of competency can be readily determined.

Based on preassessment, a study plan of behavioral objectives, concepts or unit sequences can be assigned. Each individual is assigned objectives and/or units he/she is judged to need.

Learning Style

What can you conclude from completing the "What's Your Learning Style?" questionnaire, which is included at the end of this paper? Hopefully, one thing will be that there is no one way to learn. Therefore, options need to be created to match different learning styles and likes and dislikes of students. Some prefer large group activities; others prefer almost totally independent work with an occasional lecture or small group activity. Furthermore, some students learn best with printed materials while others learn best by listening and still others must see a film or experience an event before they understand. The learning goal is identical for each of the options. All students will achieve the same learning goal, but they will do it in different ways.

Options are not necessarily sensory. For instance, assume there is a unit called "Classroom Communication". In one option, the students use their initiative to search out appropriate sources of information. In another option, by contrast, there is more guidance in each step of the learning process and more use of pictures, tapes and specific exercises.

Another example of non-sensory options would be an inductive or deductive alternative. In the inductive option, the student would begin the experiences and make inferences to general principles. The deductive approach would reverse the sequence by starting with generalizations and then showing concrete implications.

Still another example of non-sensory options would be a theme approach. For instance, the student may have options as to the type of examples he/she would be most interested in working with to understand concepts of metrication. In one theme option, there may be problems from business, in another the problems are from agriculture, and in still another, home economics.

As an illustration of different types of options, examine the three options in the "Learning Option Exercise" at the end of this paper, and then list differences you detected in the learning style. Did you note that more of the student's inner resources were used in Option A than in Options B or C? In Option B the situation was structured by providing ready-made materials. In Option C the student must show initiative by asking a teacher to work with him/her.

Pacing

Pacing will be different for each student because each individual is working on different objectives and in a different learning style. Some students may be working through different options to achieve the same learning goal. Therefore, they will reach the goal at different points in time.

Theoretically, all kinds of differences are taken into consideration in individualized instruction, but in reality the one common in all types of individualized instruction programs is self-pacing. Students are allowed to take as much time as needed to accomplish objectives A study done in Nebraska reflects that some students do need time limits established for completion of work, however. The problem students mentioned most frequently in individualized instruction was "I keep putting work off."

Contract

A contract is often an integral part of individualized instruction. The purpose of a contract is to get students to commit themselves to achieve specific learning objectives. The contract orients the student in a particular direction, makes his/her goals visible and elicits student involvement by asking the student to share in the decision-making process. In a conference between teacher and student, negotiations take place for the student's objective, activities to be conducted, basis for grading or evaluation and time allowed to complete work. Details are clearly stated so the student can work independently at his/her own speed and own location. Typical assigned activities might include programmed materials, study guides, learning packages, group discussions and various use of media. To ratify the contract, both the student and teacher sign the terms of the agreement. The contract does not need to be a document with a rigid format. The terms and ways of expressing them are flexible.

Self-test

After working through a unit, the student may take a self-test. Sometimes self-tests are an integral part of prepackaged individualized learning packages. At other times self-tests may be teacher-made. From the results of the self-test, the student can decide whether or not he/she is ready for the check-out. When the student feels he/she is ready, he/she proceeds to the instructor for a check-out.

Check-out

After the student is in the individualized program, it is important that his/her progress is monitored. The technique of monitoring is called "the check-out". After the student has completed a component in the contract, the work is taken to the instructor or instructor-aide for a check-out. Notice that in the "Learning Option Exercise", a learning objective was stated in behavioral terms so that the student had a clear idea of his/her learning goal. The student was then asked to do activities for each of the respective options and then take the list of questions to the instructor for a check-out. The check-out accomplishes three goals. One, the student will get feedback on his/her progress;

two, the individual has personal one-to-one contact with the instructor; and three, the instructor is able to monitor the student's learning so that progress can continually be assessed.

Facilities

Appropriate physical facilities are important to the success of individualized instruction programs. While awkward, the implementation of individualized instruction in a conventional classroom is possible if one is resourceful.

Students need proper places to work as they undertake a variety of learning activities. These facilities may include comfortable lounge areas for reading and carrels where one student may work independently. Special space for this is important since students will spend approximately forty percent of their time in independent study. Some carrels need to be "wet" - that is, they are equipped with power sources to run audio or visual equipment. Other carrels may be "dry" - that is, they may have no equipment provided in them, consisting of only a semi-private space for independent study with good light and a comfortable chair. The physical environment in which the writer has used individualized instruction has not permitted the use of carrels. Improvisation by using storage closets has been satisfactory, however. In some instances, earphones used by a student in a corner of the classroom has had to be substituted for a "wet" carrel.

To encourage group work, there should also be areas where students may confer without disturbing others. Finally, there must be a large group meeting area and an instructor-student conference place.

Summary

Let us summarize the components in the process of individualized instruction.

What is individualized instruction?

- Getting learning theory in harmony with individual differences of students

How is this done?

- Learning objectives written in specific behavioral terms
- Pre-entry behavior evaluated
- Individual learning style considered
- Students work at their own pace
- Contract cooperatively determined and signed by student and instructor
- Self-tests provide opportunities for students to know how they are doing
- Check-out determines student's readiness to begin a new objective or unit
- Facility requirements are different from those for traditional teaching approach

Some instructors like to begin individualized instruction programs on a small scale and gradually expand. Others prefer to begin with an all-out large-scale effort. One's choice will depend on his/her own particular style, resources and facilities. The important thing, however, is to start. The ability of our future teachers to implement individualized instruction as a strategy in their classrooms will depend to a large degree on whether they have experienced it as learners. Research has consistently shown that teachers tend to teach the way they have been taught.

FOOTNOTES

[1] G.H. Reavis, "Fable of the Activity Curriculum, or the Differences in Individual Differences," original source unknown.

[2] B.A. Doty and L.A. Doty, "Programmed Instruction Effectiveness in Relation to Certain Student Characteristics," Journal of Educational Psychology, Vol. 55, 1964, pp. 334-338; M.W. Traweek, "The Relationship Between Certain Personality Variables and Achievement Through Programmed Instruction," California Journal of Educational Research, Vol. 15, 1964, pp. 215-220.

[3] G.O.M. Leith, "The Acquisition of Knowledge and Mental Development of Students," British Journal of Educational Technology, Vol. 1, No. 2, May 1970, pp. 116-128.

WHAT'S YOUR LEARNING STYLE?

Directions: Circle the letter preceding the answer which best describes you.

I. What is your peak time of day for studying?

A. Sometime between 6 a.m. to noon
B. Sometime between noon to 6 p.m.
C. Sometime between 6 p.m. to midnight
D. Sometime between midnight to 6 a.m.

II. Under what condition do you concentrate best when studying?

A. Complete silence
B. Soft background music
C. Loud background music
D. General hub-bub

III. What is your optimum length of concentration time when studying?

A. 15 minutes
B. 30 minutes
C. 60 minutes
D. 90 minutes

IV. Where do you prefer to read when studying?

A. Seated on the sofa or an upholstered chair
B. Seated on a chair at a desk
C. Laying on a bed
D. Laying on the floor

V. What kinds of learning experiences help you learn best?

A. Hearing
B. Seeing
C. Reading
D. Doing

SWM/77

LEARNING OPTION EXERCISE

Your learning objectives

After reading pages 59-81 in Teaching As a Subversive Activity, develop objectives for one area of your subject matter utilizing the standards relating to "What's Worth Knowing."

What you will do

Select one of these options to achieve the learning objectives.

A	B	C
1. Select one area from your subject matter and develop a concept chart.	1. Select a resource unit from the file and list the concepts used to develop the unit.	1. Visit a teacher in your subject area. Discuss and list the concepts he/she teaches in one unit.
2. Read pages 59-81 in Teaching As a Subversive Activity.	2. Read pages 59-81 in Teaching As a Subversive Activity.	2. Read pages 59-81 in Teaching As a Subversive Activity.
3. Write the questions you would ask to determine what is worth knowing about each concept.	3. In a group of three, develop a list of questions you would ask to determine what is worth knowing about each concept.	3. Write the questions you would ask to determine what is worth knowing about each concept.
4. Go to the check-out.	4. Go to the check-out.	4. Go to the check-out.
5. Write a performance objective for each concept.	5. Write a performance objective for each concept.	5. Write a performance objective for each concept.

List the differences you detected

PREPARING TEACHERS TO INSTALL AND MANAGE COMPETENCY-BASED VOCATIONAL PROGRAMS

by Glen Fardig, Ph.D.

If we agree that competency-based vocational instruction is a major new force in occupational training, we must then address this question: How can we as teacher educators most effectively train teachers to implement CBI? There are a number of possible answers to this question, and you will want to consider those that seem most feasible for you at your institution.

Those of us who have been deeply committed to the principles of performance-based teacher education (PBTE) are convinced that it is logical that the PBTE approach be used to prepare vocational teachers for installing CBI in the schools. Some administrators of CBI programs contend that it is essential that the PBTE approach be used.

There are at least three forceful reasons why PBTE is a logical (or essential) approach.

1. The same basic characteristics and program principles apply to both PBTE and CBI. Only the target group and subject matter content differ. In CBI, the target group is secondary and postsecondary vocational students, and the subject matter is technical skills and knowledge. In PBTE the target group is pre- and in-service teachers while the content is professional pedagogical competencies. In both cases the competencies are carefully specified, criteria are predetermined, assessment is performance oriented, and students progress at their own rate in achieving each competence.

2. By using the PBTE appraoch to prepare teachers for CBI, the learning is not just cognitively based but experience based. The reinforcement that derives from successful learning experiences will do much to shape positive teacher attitudes toward CBI.

3. We as teacher educators should practice what we preach. If we want our pre- and in-service teachers to utilize CBI procedures we should present a model of that approach in our own instructional programs.

If you are going to use PBTE, then you must have identified the specific competencies the teacher trainees are expected to achieve. The Center's research on which the performance-based teacher education curriculum is founded identified 384 important teacher competencies, but these do not include all the specific skills required to install and manage CBI programs. The reason for this is that this research was completed in 1972 . . . before very much was being done about CBI. Thence, there has been a need to look carefully at this new educational thrust called CBI to extend and update the original 384 by identifying the additional teacher competencies needed.

This has now been done, and 45 new competencies specifically related to CBI have been identified. Briefly, the job was done in three major steps.

Step I. Center staff reviewed the literature on competency-based instruction, analyzed it for its implications for teacher education, and derived 22 specific competency statements.

Step II. A task-analysis workshop was convened, using the DACUM (Develop A CUrriculuM) process. The DACUM process to competency identification is essentially a modified small group brainstorming technique. Twelve experts in CBI served as members of the group. After about six hours of hard work, 64 competency statements were identified and agreed on.

Step III. The DACUM competency statements and the literature-derived statements were compared, merged, and refined. The final result was the list of 45 teacher competencies.

This list is now available to you for your use in planning and revising your teacher education programs. It should be noted that some of the listed competencies are unique to CBI (e.g., No. 36, "Orient Students to the Competency-Based Program"). Others are related to general teaching competencies but have special application to teaching in a CBI program (e.g., No. 15, "Conduct Student Performance Assessment").

As part of The Center's CBI training project, two new teacher education modules have been developed. These modules deliver on 8 of the 45 competencies the modules are:

Module K-1 "Orient the School and Community to Competency-Based Instruction."

Module K-2 "Organize the Vocational Program to Install Competency-Based Instruction."

These two modules were judged by the project's national advisory committee as being most urgently needed by teacher education institutions. It is planned that ten other modules will be completed as funds become available.

There are, of course, a number of other possible ways of delivering instruction for CBI in addition to using the modules in a performance-based teacher education program. It would be relatively easy to include a specific unit on CBI in an existing methods course, for example. This would constitute minimal preparation, but it would at least be an introduction to the approach.

For in-service vocational teachers, special CBI workshops can be organized. A two-day workshop might be adequate to create awareness and to teach basic CBI principles, but a much longer workshop (perhaps two weeks or more) is necessary if teachers are to be trained to install and manage CBI programs.

There is always the time-honored college tradition of adding a new course to the curriculum. This may be highly desirable at the graduate level, but not really feasible (or necessary) for teachers working for an undergraduate degree or for certification.

A very effective procedure for training teachers for CBI is to utilize the competency-based instructional approach in a technical subject-matter course. The entire course can be designed and conducted on the best principles of CBI. Teachers in training operating in a real educational setting personally experience the role of the student in CBI and the new relation of the resource person to student. In addition, the trainee can become familiar with typical CBI instructional materials and begin to understand the responsibilities these place on the learner.

To assist teacher educators prepare vocational instructors for competency-based instruction, we have prepared an annotated bibliography of CBI materials. This bibliography can be used to aid vocational teachers in understanding CBI, in becoming familiar with implementation approaches, in locating and evaluating materials, and in developing their own materials. The bibliography is the result of two computer searches, a manual search, and personal professional experience.

Throughout the production of this bibliography, we have tried to maintain PBTE and CBI as discrete concepts. However, the materials themselves are often not so discrete. Many a person's PBE is another's CBE is another's CBVTE or PBTE. We have, thus, found it necessary to include some PBTE (or teacher education) materials which have implications for the CBI installer.

The bibliography is divided into five sections:

- CBI: General Theory and Overviews
- CBI: Implementation Materials
- Development of Instructional Materials for CBI
- Selected Available Instructional Materials for Competency-Based Occupational Training
- Competency-Based Instructional Materials Under Development

In Part I (General Theory and Overviews) are included books, articles, presentations, and other bibliographies which inform the CBI teacher/implementer about the concepts of CBI, the CBI movement, the state-of-the-art, and current controversies concerning the CBI approach.

In Part II (Implementation Materials) you will find materials which may serve as implementation aids and which describe various aspects of the implementation process, such as: orientation, management, adapting and blending CBI with traditional programs, individualization, and professional development. (Some of these materials may, in fact, be PBTE materials, but they have been selected as having specific implications/applications to CBI installation.)

Part III of the bibliography (Development of Instructional Materials for CBI) lists materials which should help CBI teacher/implementers develop, refine or adapt, and select CBI instructional materials which best suit their own individual and local needs.

Part IV (Instructional Materials) is probably the most rapidly changing section of the bibliography. This part lists selected, available CBI instructional materials. Here you will find a listing of competency-based resource guides, student guides, curriculum guides, modules, and LAPs. These materials were selected using very much the same criteria you would need to use if you were a teacher looking for good CBI instructional materials. We addressed, in this selection, the following criteria questions:

- Was there a competency list for which the source was clear (i.e., V-TECS, Task Inventory Exchange, etc.), and was the list not simply developed from a teacher's personal experience?
- Could the student know what the objectives were in advance of instruction, and were the criteria stated, not hidden?
- Was the student actually asked to perform the competency as part of the assessment procedures?
- Did the learning experiences correlate with the objectives or were they extraneous and unessential?
- Was the format attractive and the reading level appropriate?

There is a growing body of resource and instructional material related to competency-based instruction. The skills that teachers need in order to implement CBI have been identified. Model instructional programs are amassing experience and objective data about the CBI approach to vocational education. With these tools now becoming available, teacher educators are equipped to build renewed programs of training to prepare teachers for the future.

PERFORMANCE-BASED TEACHER EDUCATION MATERIALS FROM THE CENTER FOR VOCATIONAL EDUCATION

By Glen Fardig, Ph.D.

You have been hearing about teacher education instructional materials that are now becoming available to you from a number of sources. The Center for Vocational Education has some news that may be of particular interest and help to you as you plan and develop your own programs.

As you may know, The Center has been involved in a long and intensive research and development effort in competency-based teacher education (we call it performance-based teacher education). The results of this work are now becoming available to the profession in the form of teacher education modules. We think you should examine these instructional materials for use in your institution because they embody the "state of the art" in competency-based instruction.

It is generally accepted that teachers teach others as they themselves have been taught. Therefore, if you want teachers to use the competency-based approach in their classrooms, you should organize your teacher training programs so they themselves may experience competency-based instruction. In fact, the teacher training program should be a model on which teachers can base their own occupational training programs.

For in-service teachers preparing themselves for effective teaching in competency-based programs, PBTE is particularly appropriate. Traditional college courses are often not very convenient, or relevant, or helpful to the practicing teacher. In an individualized performance-based program, teachers can select those competencies they wish to achieve, and work on them at their own pace, using their own learning style. When they feel that they have achieved proficiency, they can demonstrate their competence in their own school classroom.

The Center's PBTE Modules

PBTE programs, to function well, do require instructional materials that are individualized, basically self-contained, and thoroughly developed and tested. The Center now has PBTE modules that meet these specifications, and they are rapidly becoming available to the profession. There are 100 modules, organized into ten categories.

Category A: Program Planning, Development, and Evaluation
Category B: Instructional Planning
Category C: Instructional Execution
Category D: Instructional Evaluation
Category E: Instructional Management
Category F: Guidance
Category G: School-Community Relations
Category H: Student Vocational Organization
Category I: Professional Role and Development
Category J: Coordination of Cooperative Education

Publication of the PBTE modules is the culmination of ten years of exhaustive research and development. There have been three major phases in this work.

The research phase covered the years 1967-1972. The major outcome was the identification and verification of 384 competencies important to successful vocational teaching (professional pedagogical competencies). In this research effort, over 1100 persons from all service areas and from secondary and postsecondary schools were involved.

In the curricula development and testing phase (1971-77) the 100 instructional modules were developed in several stages. Prototype modules were written and given preliminary testing. The modules were then subject to major revision and advanced testing at 18 teacher education institutions involving over 8000 pre- and in-service teachers. The feedback from students and from resource persons was highly positive. Based on data from advanced testing, all 100 modules were subject to further refinement and prepared for publication.

The present phase is that of dissemination. The teacher education modules are being published and distributed by the American Association for Vocational Instructional Materials (AAVIM) at the University of Georgia. The following program support materials are also being produced:

Student Guide to Using Performance-Based Teacher Education Materials

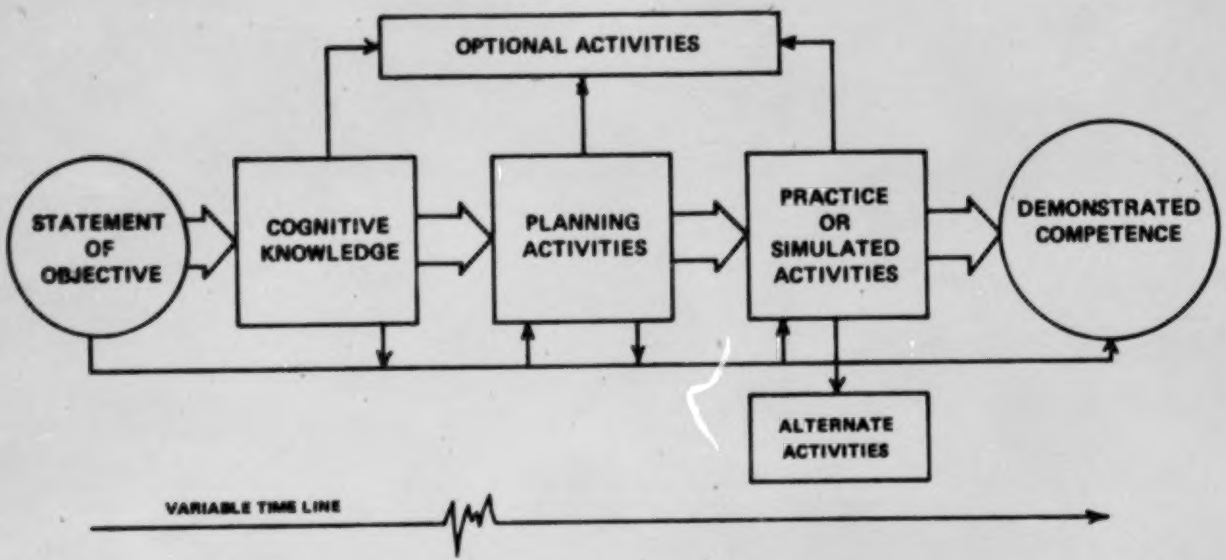
Resource Person Guide to Using Performance-Based Teacher Education Materials

Guide to the Implementation of Performance-Based Teacher Education

Twenty-five institutions are now involved in the implementation of PBTE using The Center's materials, with state and regional workshops being held to train teacher educators to utilize the PBTE approach. We are pleased to report that response to The Center's modules has been overwhelmingly favorable. They have been acclaimed as filling a crucial need in vocational teacher education.

Each module covers one or more of the 384 competencies identified as being important in vocational teaching. The modules are basically self-contained, and to a great extent self-instructional. However, the teacher educator, serving as resource person, is an integral and essential element in the instructional program. Every module embodies what we believe to be the best principles and practices of competency-based education.

The modules' instructional sequence is graphically presented here:


OPTIONAL ACTIVITIES
STATEMENT OF OBJECTIVE
COGNITIVE KNOWLEDGE
PLANNING ACTIVITIES
PRACTICE OR SIMULATED ACTIVITIES
DEMONSTRATED COMPETENCE
ALTERNATE ACTIVITIES
VARIABLE TIME LINE

TYPICAL INSTRUCTIONAL SEQUENCE
FOR CVE MODULES

- After the statement of the terminal objective, the first section of a module is devoted to the cognitive knowledge on which the competency is based. (In the module on Oral Questioning, for example, there is information on the importance of oral questioning, techniques of questioning, types of questions, and when to apply the techniques.)

- Planning activities and experiences are provided.
- Practice activities provide opportunities for the teacher to try out his/her skills in a controlled setting.
- Alternate activities are suggested for situations in which the standard learning activities are not feasible.
- Optional activities provide opportunities for those who want to learn more about the teaching competency, or for those who have special interests.
- Feedback to the learner is integral with each learning activity.
- In the final experience the teacher is required to demonstrate competency by performing the subject competencies in an actual school situation, with real students. A specially prepared assessment form is used by the resource person to rate the teacher's performance.

A few important points need to be made for you to consider as you review the PBTE materials:

1. The PBTE modules are designed to be appropriate for in-service as well as preservice teachers, and for teachers working in secondary, postsecondary, or adult education programs. They are appropriate for the professional training of instructors in all occupational areas.
2. No one teacher would be expected to complete all 100 modules, or to achieve proficiency in all 384 competencies. These competencies might represent the work of a professional lifetime for a teacher. Typically, preservice programs develop a requirement list of 25 to 30 modules, with an additional listing of ten elective modules.

3. While the modules are individualized, and self-contained, they are not meant to stand alone, or serve as a kind of correspondence course. They are designed to form an integral part of a total performance-based teacher education program. Their use requires the participation of qualified teacher educators.
4. The implementation of PBTE requires that faculty and support personnel be trained for their new roles in the program. We are strongly convinced that you cannot select a series of modules, hand them out to teachers to read, and expect any success. To assist institutions and agencies develop effective PBTE programs, we at The Center have developed technical assistance and training programs.

In summary, performance-based teacher education has now come of age. It is being widely accepted and implemented in vocational teacher education programs. PBTE is especially appropriate for in-service professional development programs. For PBTE to succeed, thoroughly developed individualized instructional materials are needed. The Center's PBTE modules are indeed well-developed, flexible, and versatile materials around which teacher education programs can be built. They are now being commercially published. If used to their fullest potential they can make a significant contribution to the development of teachers who will produce sound and successful vocational education programs.

REVIEW OF THE VOCATIONAL EDUCATION CURRICULUM MATERIALS

by Terry Newell, Ph.D.

The purpose of the Common Core Curriculum Workshop held on November 17 and 18, 1977, was to discuss and evaluate those competency-based instructional materials currently available in the area of Vocational Education. Towards this end, Dr. Glen Fardig, a research and development specialist at the Center for Vocational Education at the Ohio State University, was asked to prepare an annotated bibliography of such materials. An attempt was then made to obtain as many of these materials as possible. The materials were then displayed at the workshop and workshop participants evaluated the materials. This report summarizes the results of the evaluation process.

Procedure

The 21 participants at the workshop represented a cross-section of teacher educators and subject matter specialists engaged in college level vocational education. Seven participants were from Home Economics Education, 5 from Industrial Education, 3 from Business Education, 3 from Administrative areas and one individual indicated a general emphasis in teacher education.

Nineteen "sets" of competency-based curriculum materials were available and were displayed at the workshop. Since it would have been an extremely onerous task to require each participant to rate each set of materials, a decision was made to have each participant intensively study and rate four sets after an initial perusal and review of all the available materials. A portion of the workshop was devoted to short presentations by individuals involved in the development or production of some of the materials. These presentations summarized the background and rationale for the particular set of materials. In some instances "sample modules" were distributed to participants. The presentations specifically dealt with the following sets:

(1) the Ohio State Performance-Based Teacher Education (PBTE) modules; (2) the San Diego Learning Activity Packets (LAPS); (3) the American Institutes for Research Vocational Education Curriculum Specialist (VECS) modules and (4) the Common Core Curriculum (CCC) modules.

Following the presentations, the participants were briefly introduced to the remaining materials via Dr. Fardig's annotated bibliography. Subsequently, the evaluation form developed by the CCC program evaluator was explained and participants were asked to select four sets of materials based upon their own interests. Since many of the sets contained several modules, participants were asked to select one module for intensive study and evaluate the set based upon that module.

Evaluation Form

The initial section of the 3-page evaluation form (see following attachment) consisted of eleven questions covering various basic features of the module. Each item was rated on a 3 point scale where: 3 = excellent, 2 = adequate, and 1 = poor. The items concerned such aspects as the clarity of directions for use, overview and introduction, the variety of activities, criteria for completion of activities, flexibility, organization, production features, and the attractiveness of the module. In order to generate an overall index for these characteristics of the module, the average rating on items 1 through eleven was calculated.

The second section of the evaluation form consisted of questions concerning the type of module approach being utilized by the set. This series of "yes-no" items queried whether the module had pre and post assessment devices, was self-contained, was individualized, and contained group activities.

The final section of the form asked whether the evaluator or one of their colleagues not at the conference might be interested in using the module. Also, the amount of time the participant studied the module was requested and, finally, an overall rating of the module was obtained. The original scale for the final overall rating was from 1 = poor to 4 = excellent. However, in order to make this item comparable to the items in the first section of the form, the original scale was transformed such that now 1 = fair, 2 = good and 3 = excellent. (See evaluation form for descriptive phrases associated with these points.)

Results

The following section of the report summarizes the results of the evaluation process. As an initial indication of interest in the various sets of materials, Table 1 presents the number of individuals who chose to evaluate each set. This table also gives the "full name", the place from whence the materials emanated, and the abbreviation or descriptive notation which is used to describe the set.

The set which generated the most interest was the Performance-Based Teacher Education (PBTE) series from Ohio State which was evaluated by eleven individuals; next came the Wayne State Competency-Based Teacher Education modules (Wayne Kits) evaluated by ten participants and the Virginia Polytechnic Institute Competency-Based Administrator Education Materials (Admin Educ-Virginia) which were rated by nine persons.

At the other end of the distribution were the University of Kentucky Competency-Based Vocational Education: In-service Education (Kentucky In-serv) materials and the Washington State University Vocational Education Curriculum Specialist (VECS-Wash) modules which attracted only one evaluator.

A total of 85 useable ratings were received from the participants. All of these ratings were combined to generate "normative" data which could be used for comparisons across all the sets being evaluated.

TABLE 1: LISTING OF COMPETENCY-BASED INSTRUCTIONAL MATERIALS AND NUMBER OF EVALUATORS OF THESE MATERIALS

SET NUMBER	NAME AND SOURCE	ABBREVIATION	NUMBER OF EVALUATORS
1	Performance-Based Teacher Education (Ohio State)	PBTE	11
2	Competency-Based Teacher Education System (Wayne State University)	Wayne Kits	10
3	Competency-Based Administrator Education Materials (Virginia Polytechnic Institute)	Admin Educ-Virginia	9
4	Competency-Based Vocational Education Administrator Materials (Ohio State)	Admin Educ-Ohio	8
5	Heart of Instruction (Ohio Department of Education)	Heart of Instruct	7
6	Vocational Education Curriculum Specialist (American Institute Research)	VECS (AIR)	7
7	Preservice Occupational Program (Illinois Office of Education)	POP	5
8	Common Core Curriculum for Vocational Education (California State University, Fresno)	CCC	4
9	Post-Secondary Teacher Training Module (Texas Education Agency)	Texas Modules	4
10	Florida's Approach to Competency-Based Individualized Teaching (Florida State University)	FACIT	3

TABLE 1: (continued)

SET NUMBER	NAME AND SOURCE	ABBREVIATION	NUMBER OF EVALUATORS
11	Performance-Based Vocational Teacher Education (Dade County Public Schools)	Dade County	3
12	Curriculum Guide for Adult Educators (University of Rhode Island)	Guide Adult Educ	2
13	B-2 Teacher Training Modules (Florida Department of Education)	B-2	2
14	Designated Subject Teaching Credential Learning Activity Packets (San Diego)	LAPS	2
15	Development, Dissemination and Evaluation Training Resources (Far West Laboratory)	Far West	2
16	Pre-service Program for Teaching Methods in Agricultural Education (University of Minnesota)	Mini-Mods	2
17	Occupational Home Economics Education Series (American Home Economics Association)	Home-Ec	2
18	Competency-Based Vocational Education (University of Kentucky)	Kentucky In-serv	1
19	Vocational Education Curriculum Specialists (Washington State University)	VECS (Wash)	1

EVALUATION OF PERFORMANCE BASED MODULES
COMMON CORE CONFERENCE: NOV 1977

Check time on your watch
when you begin.

Name ____________________ Position __________ Institution __________

MODULE SET Being Evaluated ____________________ Specific Module __________

Characteristics of the Module	Not Applicable	Poor	Adequate	Excellent
1. The module provides clear directions for use.				
2. The module provides an overview or introduction which explains the importance of the objectives.				
3. The module lists the objectives.				
4. The module provides definitions of technical terms.				
5. The module contains a wide variety of activities.				
6. The module provides clear directions for completion of activities.				
7. The module specifies the criteria to be met for the activities.				
8. The format & activities are flexible and the module could be used in various courses and situations.				
9. The module is arranged in a logical sequence.				
10. The module is well-produced: grammar, clear printing, binding is sturdy, etc.				
11. The module is attractive.				

For any item on which you rated the module as "poor" please briefly indicate your reason. (Continue on back if necessary)

Item #	Reason

Module Evaluation (Continued)

	Yes	No
12. The module contains a pre-assessment device.		
13. The module contains a post-assessment device.		
14. The module is self-contained.		
15. The module requires outside references.		
16. The module is "individualized" - a student could complete it on an independent study basis.		
17. The module provides for student teacher interactions and feedback.		
18. The module contains group activities.		

For any time to which you checked "NO", please indicate whether you think that omission detracts from the potential use of the module.

Item Comment

19. Would you use this module or some of these modules in your teaching activities? Yes No

If yes - which modules in which activities?
If no - why not?

20. Do you think some of your colleagues who are not at this conference might be able to use this module or some of these modules?
Yes No
If yes, please identify:

21. Approximately how much time did you spend studying this module set?
__________ minutes

22. What is your overall opinion of this module set concerning its usefulness in vocational education?

_____ Excellent: seems to have wide applicability

_____ Good: have some application

_____ Fair: might have limited use in very specific areas

_____ Poor: it is doubtful that this material could be used in vocational education

Comments on this material:

Comparative Analysis

In an attempt to summarize the massive amount of information gathered at the workshop, Table 2 has been prepared. For each set of materials, the tables give the number of evaluators who chose to rate each set, the percentage of those evaluators who indicated they would consider using the modules in their teaching activities, the average amount of time spent reviewing the materials, the average rating of Items 1 through 11 on the evaluation form, and the mean overall opinion rating. As a final, albeit rough, index of the quality of the set, the average rating and overall opinion ratings were summed to generate a "total score".

Table 2 lists the sets in rank order according to the total index value. Several sets were tied and, in these cases, the average rank of the positions these sets occupied is recorded in the table.

An intercorrelation matrix of these variables indicated that, as might be expected, average rating and overall opinion were highly correlated (r=.69, p <.01). Overall opinion was also highly correlated with the percentage of evaluators who said they would use the material (r=.69, <.01) but average rating was correlated with use to a much lesser extent (r=.34, N.S.). Interestingly, time spent reviewing the modules did not correlate significantly with any of the other variables. The time spent variable was probably more influenced by the length and complexity of the material. Thus, even if the raters devoted a lot of time to studying the material or if the material was lengthy and complex, they did not feel compelled to rate the material highly.

Finally, since participants were free to choose the sets of material they wished to evaluate, it is of interest to note that the number of raters of a set was highly correlated with the average rating (r=.62, p <.01), and moderately with overall opinion ($r=.46$, $p<.06$). However, number of evaluators was only slightly correlated with the percentage who would use the material ($r=.35$, N.S.).

Returning to Table 2, it is convenient, although somewhat arbitrary, to divide the seventeen sets into three major categories. The first category consists of the top three ranking sets; each received a total score greater than 5.0. These may be labeled as superior materials. These three sets were (1) the Ohio State PBTE modules, (2) the Illinois POP kits and (3) the CSU, Fresno CCC modules.

Both the PBTE and CCC materials may have had some extra "help" in the rating. Dr. Fardig, the main speaker at the workshop, gave a most cogent presentation of the rationale and development of the PBTE materials (and also passed out free sample modules). Likewise, the participants received free samples of the CCC modules and, since the workshop was sponsored by the CCC project, a certain "halo effect" might have been present. (But the CCC modules were at somewhat of a disadvantage in that they are currently available only in an offset typewritten form. In terms of production qualities they suffered when compared to the readable, glossy multi-colored PBTE and POP modules.) The POP modules had no subtle propaganda or special publicity and their high ratings must have been based solely on "pure" quality. The POP set must possess special merit and it is recommended that educators interested in competency-based instruction should carefully consider it in addition to the PBTE and CCC approaches.

The second category emerging from the comparative analysis consists of the six modules receiving total scores from 4.5 to 4.8. These might be termed good or adequate material worthy of some consideration. Within this category is a diversity of material. The person interested in Administrator Education has both the Virginia and Ohio State sets available. Although both tied in the rankings, based upon the comments in the results section, the Virginia materials may be slightly better. The person interested in Adult Education might find the curriculum guide (set 12) useful although it was rated by only two individuals. The Dade County materials (set 11) suffered somewhat by adopting a parochial point of view, but all three evaluators felt they could use the material.

The third group, composed of the seven sets receiving total scores less than 4.0, might be described as containing "less valuable" competency-based material for use in Vocational Education. This category includes the "specialized" modules in Home Economics, Agriculture and Evaluation Methods. It also includes some non-CBI sets such as the Heart of Instruction series. The individual interested in Vocational Education Curriculum Specialist instructional material is in somewhat of a dilemma. The VECS from the American Institutes for Research was not highly rated and the VECS from Washington State was chosen for rating by only one participant. The curriculum specialist area may be one situation where new, higher quality CBI materials need to be developed.

TABLE 2: Comparative Analysis CBI Materials

RANK	Name and Set Number	N	% Use	Time	Average Rating	Overall	Total
1	PBTE (1)	11	100	49	2.8	2.7	5.5
2	POP (7)	5	100	34	2.6	2.8	5.4
3	CCC (8)	4	75	47	2.5	2.5	5.0
4.5	Admin-Educ-Virginia (3)	9	75	34	2.4	2.4	4.8
4.5	Admin-Educ-Ohio (4)	8	71	31	2.5	2.3	4.8
6.5	Wayne Kits (2)	10	60	42	2.5	2.2	4.7
6.5	Guide Adult Educ (12)	2	100	35	2.2	2.5	4.7
8.5	Texas Modules (9)	4	75	21	2.3	2.2	4.5
8.5	FACIT (10)	3	67	43	2.2	2.3	4.5
10	Dade Co. (11)	3	100	34	2.1	2.0	4.1
11.5	VECS (AIR) (6)	7	86	30	2.1	1.8	3.9
11.5	LAPS (14)	2	50	45	1.9	2.0	3.9
13.5	B-2 Mods (13)	2	0	37	2.3	1.5	3.8
13.5	Home-Ec (17)	2	50	40	2.3	1.5	3.8
15	Heart of Instruc (5)	7	57	41	2.0	1.7	3.7
16	Far West (15)	2	50	35	2.0	1.5	3.5
17	Mini-Mods (16)	2	50	50	2.0	1.0	3.0

The following section of this paper will selectively review some of the sets of material evaluated at the conferences.

SET ONE: PERFORMANCE-BASED TEACHER EDUCATION (PBTE)

The description of this set in Dr. Fardig's annotated bibliography is as follows:

> The Center for Vocational Education, The Ohio State University. Professional Teacher Education Module Series. Athens, GA: American Association for Vocational Instructional Materials, University of Georgia, 1977.
>
> > This is a series of 100 performance-based teacher education (PBTE) learning packages focusing upon specific professional competencies of vocational teachers. The competencies upon which these modules are based were identified through research as being important to successful vocational teaching at both the secondary and post-secondary levels. The modules are suitable for the preparation of pre-service and in-service teachers in all occupational areas.
> >
> > Organized into ten instructional categories, totaling approximately 4200 pages, the modules are basically self-contained, and each one provides learning experiences that integrate theory and application. Each module culminates with criterion-referenced assessment of the teacher's performance. A student guide, resource person's guide, and an implementation guide are available.

These materials, developed over the last seven years and funded to the tune of about six million dollars, received the highest evaluations of all the available sets. Table 2 presents the means and standard deviations of the ratings for the first eleven items on the evaluation form. At the bottom of the table, the average of these eleven items (2.8) and the mean overall rating (2.7) are given. Figure 1 presents a "profile" for this set of materials using the norms generated by combining all evaluations. As the profile indicates, the PBTE modules were seen as far superior to the average ratings for all available sets of competency-based instructional materials.

Inspection of the items on the second page of the evaluation form indicated that the PBTE modules contain both a pre and post test, are self-contained and can be used on an independent study basis. The evaluators spent an average of 49 minutes reviewing the materials with a range from 30 to 90 minutes. This was the highest mean value for this item. All eleven raters (100%) indicated they would use these modules in their teaching activities and eight of the eleven (73%) thought colleagues would find them useful.

Comments from evaluators included the following:

- Excellent, useful and functional
- Format and design are outstanding
- The overall effect is good. I like the idea that parts of the program can be purchased. They can be adapted to a program if the teacher is in accord with this principle of learning. Could become just another handout if not handled correctly. The graphic arts involved is impressive; the layout good; type selection okay, but spacing between the lines tight, which is unfortunate since plenty of white space was allowed in margins and between columns.

In summary, the PBTE modules comprise a superior set of competency-based instructional materials which covers a remarkable range of activities and abilities.

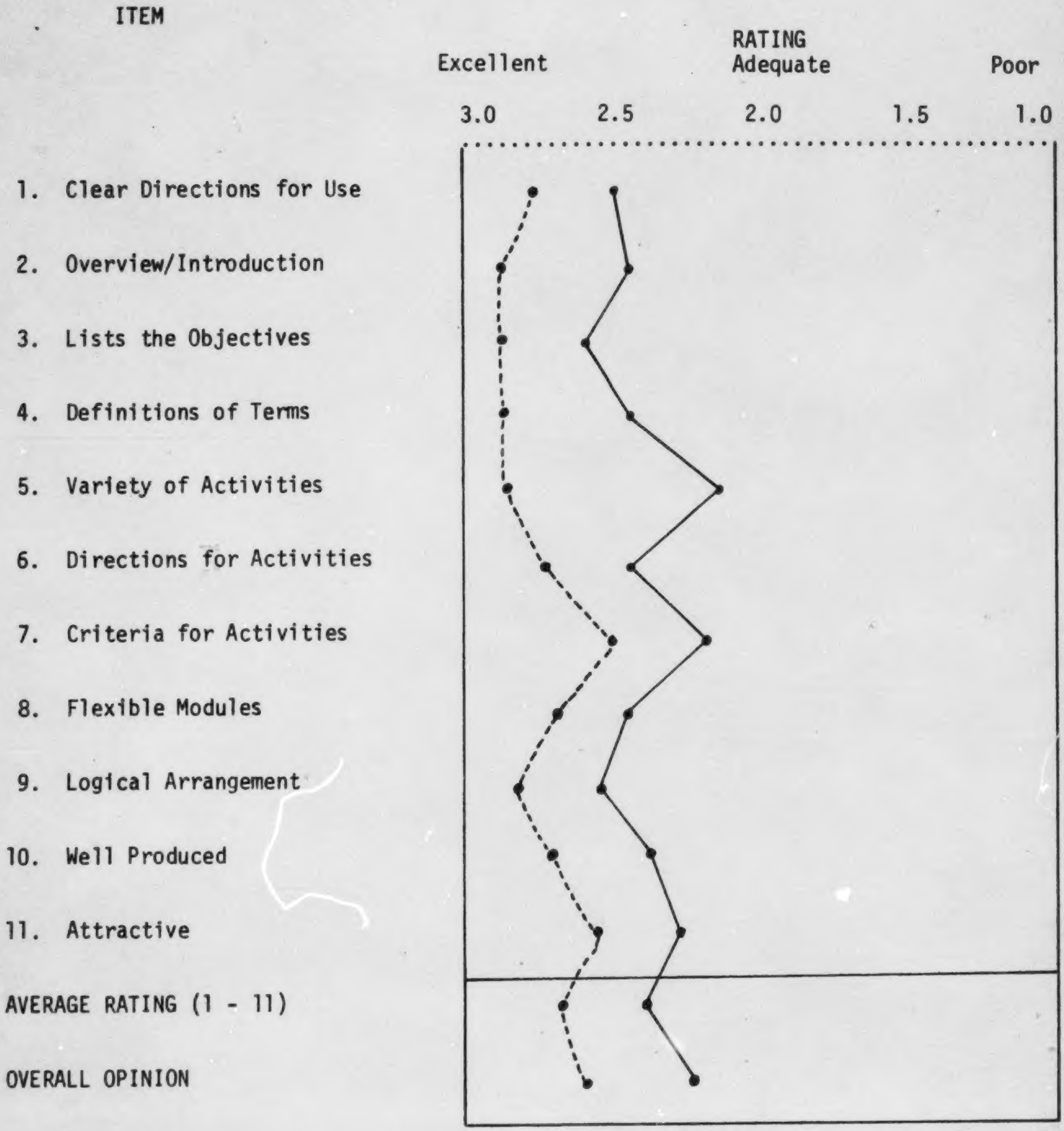
TABLE 3: SUMMARY OF RATINGS FOR MODULE SET ONE:

Performance-Based Teacher Education (PBTE) (N=11)

Module Characteristic	Mean	Standard Deviation
1. Clear directions for use	2.8	0.4
2. Overview/introduction	2.9	0.3
3. Lists the objectives	2.9	0.3
4. Definitions of terms	2.9	0.3
5. Variety of activities	2.9	0.3
6. Directions for activities	2.8	0.4
7. Criteria for activities	2.7	0.4
8. Flexible modules	2.8	0.4
9. Logical arrangement	2.9	0.3
10. Well produced	2.8	0.6
11. Attractive	2.6	0.6
Average rating (1-11)	2.8	0.2
Overall opinion	2.7	0.6

FIGURE 1: PROFILE OF RATINGS FOR SET ONE:

Performance-Based Teacher Education (PBTE)



Solid black line - Mean rating based upon 85 responses

Dotted black line - Mean rating of Module based on 11 responses

SET TWO: COMPETENCY-BASED TEACHER EDUCATION (WAYNE KITS)

Although not as broad in scope as the PBTE project, the Wayne Kits, as rated by ten workshop participants, were considered a relatively well-designed set of materials.

Dr. Fardig's bibliographic entry is as follows:

Cook, Fred S., et al. A Working Model of a Competency-Based Teacher Education System. Detroit, MI: Wayne State University, Department of Vocational and Applied Arts, 1973. ED 077 870.

> The program described here utilizes a series of teacher training modules called Wayne Kits. They are designed to deliver on 50 essential teacher competencies, with each competency containing a number of objectives. A systems approach is used to design the curricula. The Kits contain a variety of learning experiences, and are appropriate for the preparation of vocational teachers in all service areas.

Table 3 gives the means and standard deviations for characteristics of the modules. The average rating (2.5) and overall rating (2.2) are also listed. The profile in Figure 2 reveals that the Wayne Kits are at or above the norms for all aspects except item 5, the variety of activities.

Pre-post assessment is part of the module format and the modules are self-contained. Participants spent an average of 42 minutes studying the materials with a range from 30 to 60 minutes. Six out of ten (60%) felt they would use the materials in their teaching activities and six of nine (67%) thought their colleagues might find the materials useful.

There was some diversity of opinion with respect to the Wayne Kits:

- There should be a statement in front concerning the address where the materials can be obtained. This one is excellent! (Module #3)
- Excellent module on "modules". (Module #6)
- Very detailed. (Modules #4 and #5)
- Labored, contrived approach to simple subjects. (Modules #4 and #5)
- Okay for limited use and especially for some types of students, but some could get turned off. (Module #1)

The above variability in opinions raises the problem of the generality of the evaluation procedures employed here. With the massive amount of material and minimal amount of time available, the procedure yields, at best, only a very rough index of the overall quality of the set. Clearly, there is variability among modules within a set, and field reviews such as that done on the CCC modules clearly indicate this.

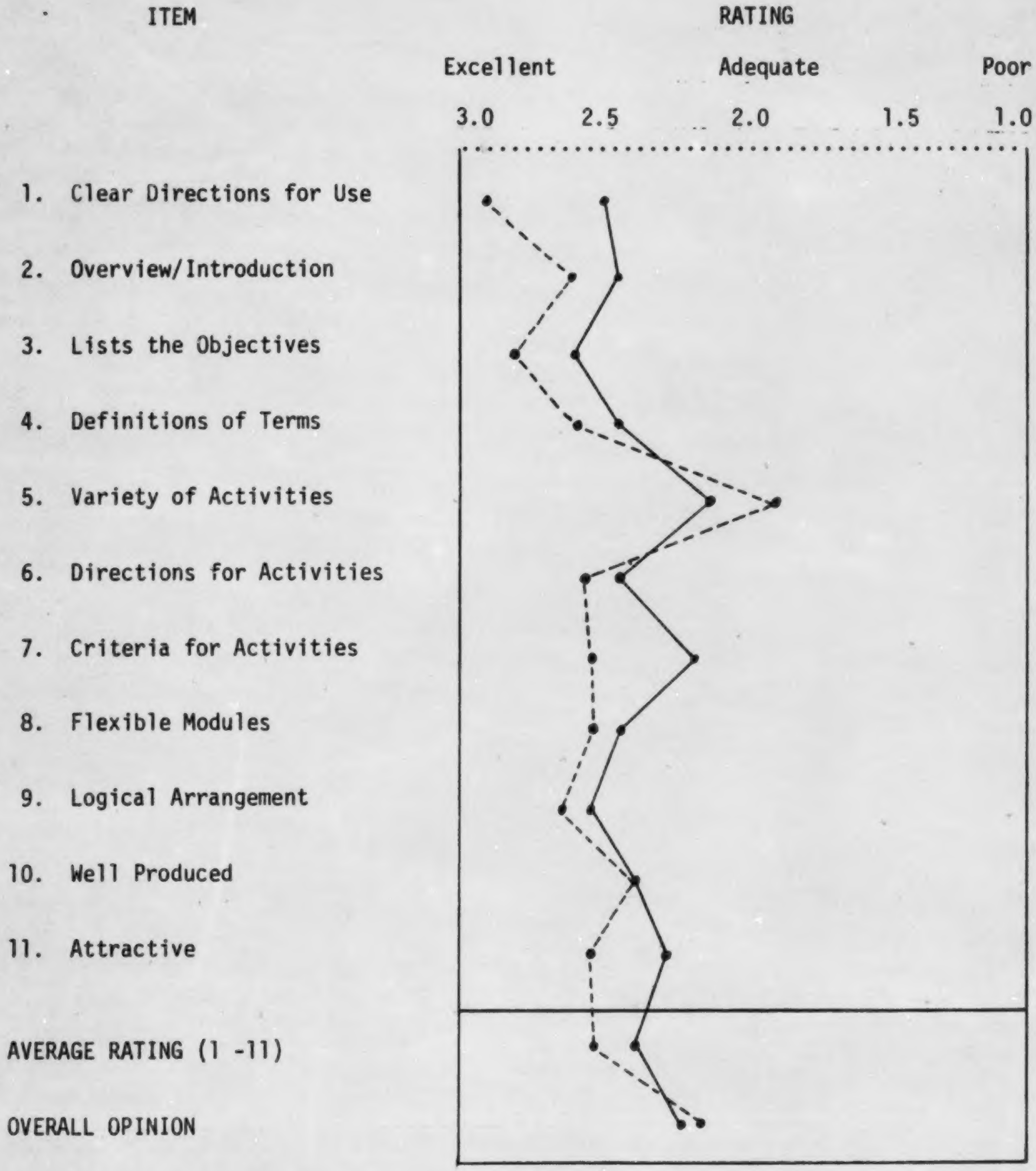
TABLE 4: SUMMARY OF RATINGS FOR MODULE SET TWO:

Wayne Kits (N = 10)

Module Characteristic	Mean	Standard Deviation
1. Clear directions for use	2.8	0.4
2. Overview/introduction	2.6	0.7
3. Lists the objectives	2.7	0.5
4. Definitions of terms	2.5	0.7
5. Variety of activities	2.0	0.8
6. Directions for activities	2.5	0.5
7. Criteria for activities	2.5	0.7
8. Flexible modules	2.5	0.7
9. Logical arrangement	2.6	0.5
10. Well produced	2.4	0.5
11. Attractive	2.5	0.5
Average rating (1 - 11)	2.5	0.5
Overall opinion	2.2	0.7

FIGURE 2: PROFILE OF RATINGS FOR SET TWO:

Wayne Kits



Solid black line - Mean rating based upon 85 responses

Dotted black line - Mean rating of Module based on 10 responses

SET THREE: COMPETENCY-BASED ADMINISTRATOR EDUCATIONAL MATERIALS: (ADMIN EDUC-VIRGINIA)

There was apparently much interest in the area of administrator-education since both the Virginia and the Ohio State materials were chosen for evaluation by many participants.

The bibliography describes this set:

Finch, Curtis R., et al. Competency-Based Administrator Education Materials. Blacksburg, VA: Virginia Polytechnic Institute and State University, Division of Vocational and Technical Education, 1977.

> While this series of six modules is meant to be used for vocational administrator education, it may be of equal value as a basis for a graduate program for supervisors. The self-contained modules include information sheets, self-evaluation activities, simulation activities, and final competency assessment forms. A user's guide is available.
>
> The titles of the modules are:
> Motivating Vocational Education Personnel to Their Optimum Growth Potential
> Implementing Competency-Based Instruction in Vocational Education
> Planning Vocational Education Programs for the Disadvantaged and Handicapped
> Formulating Goals and Objectives for Vocational Education Programs
> Organizing and Conducting Staff Development Activities for Vocational Teachers
> Preparing Local Plans for Administering Vocational Education

Table 4 indicates the specific ratings for items 1-11, the average rating (2.4), and the overall rating (2.4). Figure 3 presents the profile. These modules were rated lower than the norms with respect to items dealing with the activities and with the attractiveness of the materials.

These modules lack a pretest and do include a posttest and are self-contained. Evaluators were somewhat divided concerning whether the absence of a pretest detracted from the use of the module. Some felt a pretest would be valuable, but others indicated that given the intended use of the modules, a pretest was not necessary. (One individual who claimed to have spent 30 minutes looking over the module thought there was a pretest!)

Participants spent an average of 34 minutes (range 10 to 60) perusing the materials. Six out of eight (75%) felt they might have use for the materials. Only three evaluators apparently had colleagues who might be interested in this type of material; of these, two felt the materials were worth recommending.

Specific comments included:

- Good case studies. This is the second module I've looked at in this series. Would recommend more variety in techniques be incorporated. This one in particular, I feel needs group interaction built in. (Module: Motivating Personnel)
- Somewhat "wordy" but does deal with important facts. Table of contents should list learning activity by title and not just numbers.
- Only reviewed one but would like to use others if they are as well done as this one. (Module: Implementing CBI)

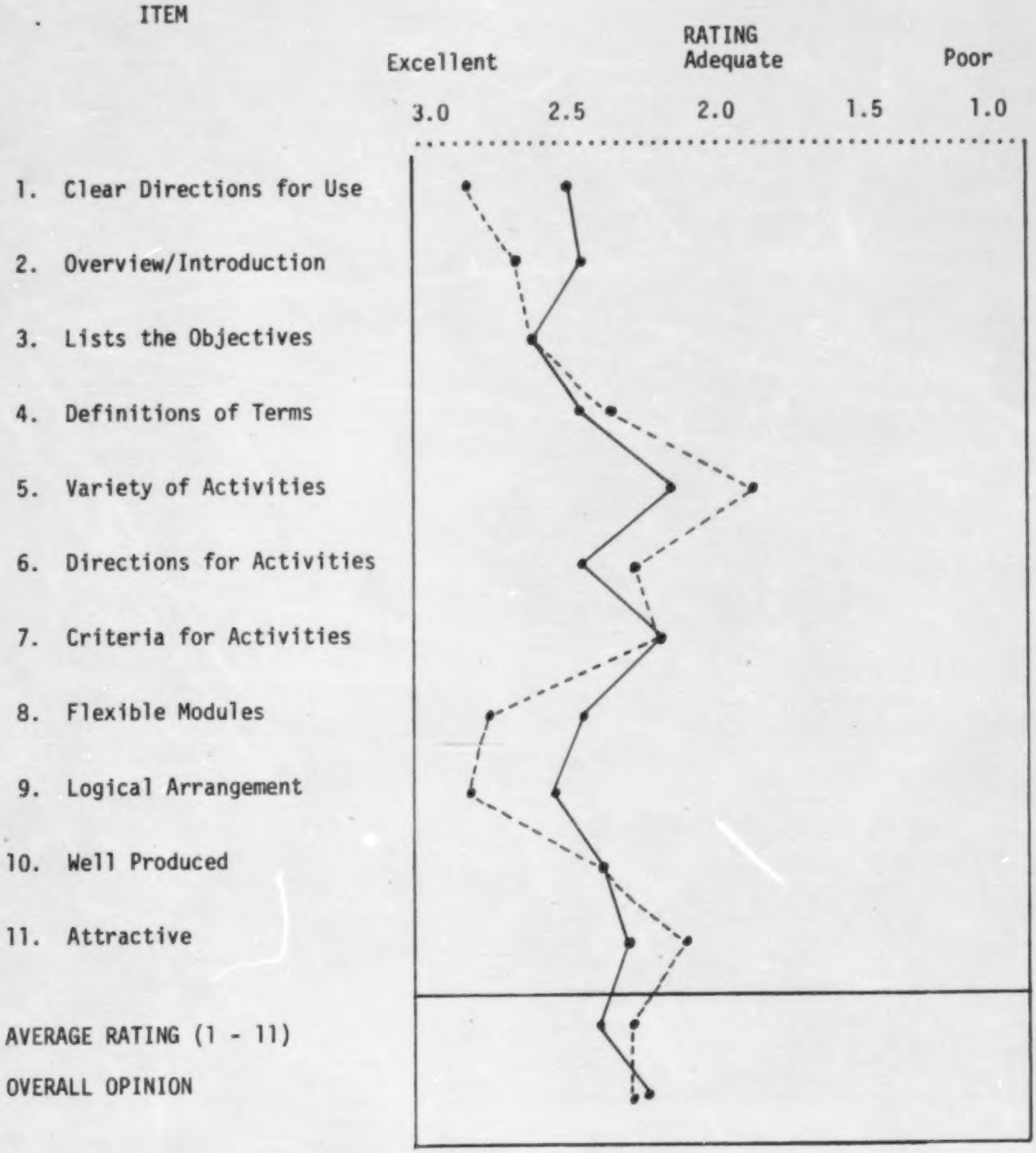
TABLE 5: SUMMARY OF RATINGS FOR MODULE SET THREE:

Administrator Education (Virginia) N = 9

Module Characteristic	Mean	Standard Deviation
1. Clear directions for use	2.8	0.4
2. Overview/introduction	2.6	0.5
3. Lists the objectives	2.6	0.5
4. Definitions of terms	2.3	0.5
5. Variety of activities	2.0	0.5
6. Directions for activities	2.4	0.5
7. Criteria for activities	2.3	0.7
8. Flexible modules	2.6	0.5
9. Logical arrangement	2.7	0.5
10. Well produced	2.4	0.5
11. Attractive	2.1	0.3
Average rating (1 - 11)	2.4	0.3
Overall opinion	2.4	0.5

FIGURE 3: PROFILE OF RATINGS FOR SET THREE:

Administrator Education (Virginia)



Solid black line - Mean rating based upon 85 responses

Dotted black line - Mean rating of Module based on 9 responses

SET FOUR: COMPETENCY-BASED VOCATIONAL EDUCATION ADMINISTRATOR (ADMIN-EDUC-OHIO)

These materials were also developed at Ohio State as part of their massive Vocational Education Project.

Dr. Fardig's summary is as follows:

> Norton, Robert E., et al. Competency-Based Vocational Education Administrator Materials. Columbus, OH: The Center for Vocational Education, The Ohio State University, 1977.
>
> > This is an initial series of six self-contained, competency-based instructional modules. They are designed for use by both preservice and inservice vocational administrators, and may be equally useful to supervisors of vocational programs. Each module includes performance objectives, information sheets, learning activities, and feedback devices.
> >
> > The titles of the presently-available modules are:
> > Organize and Work with a Local Vocational Education Advisory Council
> > Supervise Vocational Education Personnel
> > Appraise the Personnel Development Needs of Teachers
> > Establish a Student Placement Service and Coordinate Follow-up Studies
> > Develop Local Plans for Vocational Education, Part I
> > Develop Local Plans for Vocational Education, Part II

Table 5 presents descriptive statistics for the basic characteristics of the modules. The average rating for items 1 - 11 was 2.5 while the overall opinion rating was 2.3. It should be noted that the standard deviation for overall opinion was quite large (s=0.9), indicating that there was disagreement among evaluators. The profile, presented in Figure 4, reveals that the Ohio State Admin-Educ modules are superior with respect to clarity of directions but lack a variety of activities and appear to be rather inflexible.

The modules are more or less self-contained, but outside references are also suggested. There is no pretest but a posttest is available. An average of 32 minutes with a range from 15 to 45 minutes was devoted to the examination of this set.

Five out of seven (71%) said they would use the materials but only one of three (33%) could think of a colleague to whom they might recommend the modules.

The variability of opinion concerning the value of the Ohio State Admin-Education materials is reflected in the following comments:

- It sets up arbitrary classifications for an important topic and concentrates on learning classifications instead of what the purposes of the questions should accomplish.
- Activities limited to four rather traditional activities.
- The print is small and creates a response of "a lot to read" because it is small - better if it were given some space and pages. Also needs some rethinking - if you are to orient to others - an activity should not be optional on community.

Individuals who rated the modules highly had no comments.

Both the Virginia and Ohio State Administrator Education modules received similar ratings; if a choice were forced upon one, it would seem more reasonable to start with the Virginia based upon the lesser variability in ratings.

TABLE 6: SUMMARY OF RATINGS FOR MODULE SET FOUR:
Administrator Education (Ohio State) (N=8)

Module Characteristic	Mean	Standard Deviation
1. Clear directions for use	2.8	0.4
2. Overview/introduction	2.4	0.5
3. Lists the objectives	2.6	0.5
4. Definitions of terms	2.7	0.5
5. Variety of activities	2.1	0.8
6. Directions for activities	2.7	0.5
7. Criteria for activities	2.2	0.4
8. Flexible modules	2.1	0.6
9. Logical arrangement	2.5	0.7
10. Well produced	2.5	0.5
11. Attractive	2.5	0.5
Average rating (1 - 11)	2.5	0.4
Overall opinion	2.3	0.9

SET FIVE: HEART OF INSTRUCTION

Participants at the workshop had some trouble rating the modules in the Heart of Instruction series since they do not follow the competency-based approach. (One participant suggested that we had thrown in a "ringer" to see if the participants were paying attention.) Most of the raters commented on the non CBI nature of the set but rated the modules as best they could based to some extent on content and using the "not applicable" category on the evaluation form.

In this bibliography, Dr. Fardig describes the set thusly:

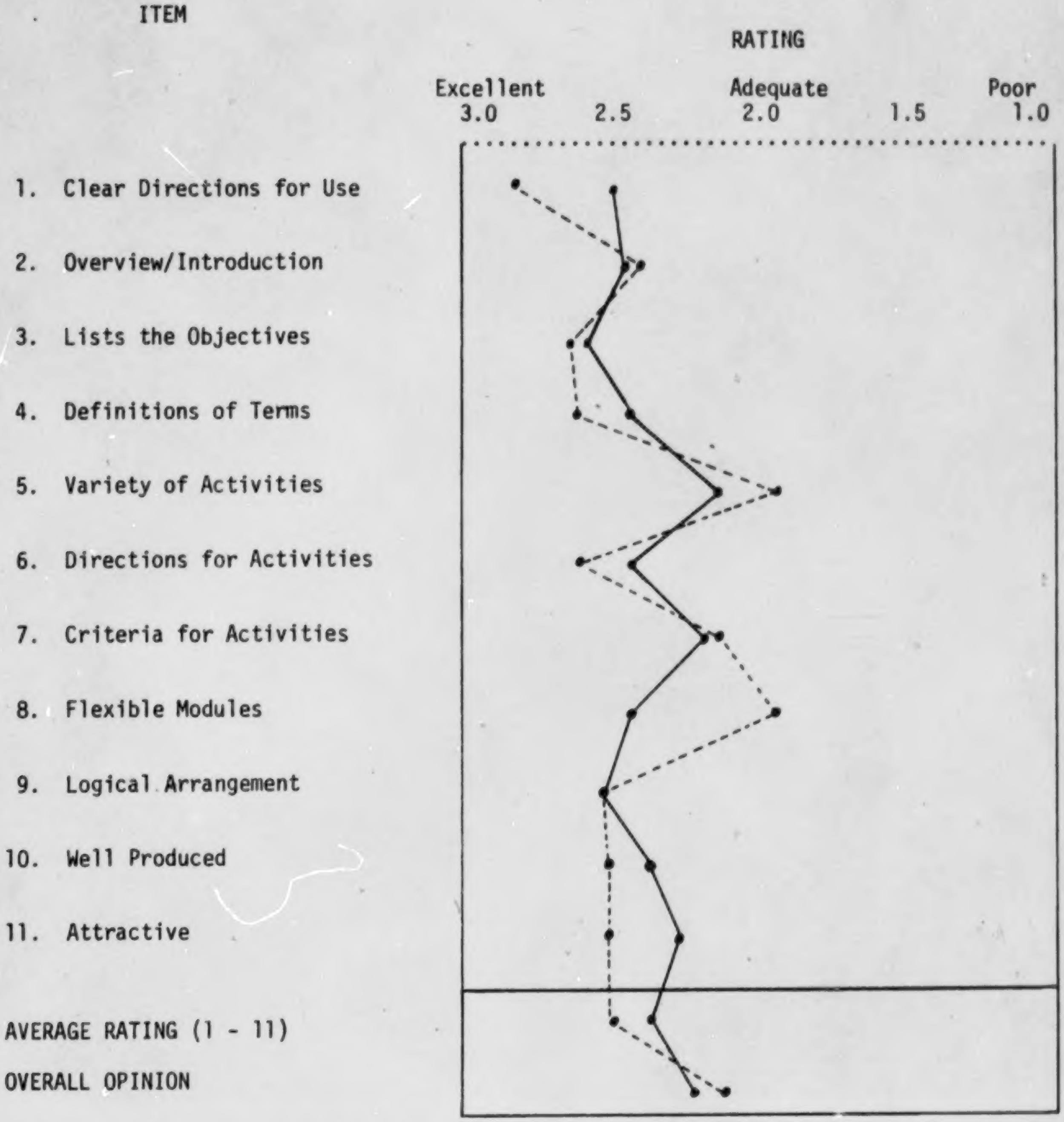
> Dull, Lloyd W., ed. The Heart of Instruction. Columbus, OH: Ohio Department of Education, Division of Vocational Education, 1977.
>
>> This is a series of 13 booklets designed to assist the vocational teacher and other members of the instructional team--counselors, supervisors, and administrators--to improve instruction. Each booklet is approximately 50 pages in length, and includes an overview of the topic, compilation of practical resources, and suggested performance activities. Intended primarily for staff development of in-service vocational teachers, these materials can also be used for preservice teacher training.
>>
>> The series covers such areas as the psychology of learning, selection and use of teaching strategies, communication, and techniques for discipline.

Summary information is provided in Table 6 and by Figure 5. The average rating for the Heart of Instruction was 2.0 and the mean overall opinion was 1.7. The profile indicates that the series was not considered to be particularly valuable and was rated below the norms on each item except attractiveness.

Since the modules are not competency-based, the items on page 2 of the evaluation form were generally checked negatively. Participants spent an average of 41 minutes (range 20 to 65) surveying the material. Four out of 7 (57%) concluded that some use might be made of the material.

FIGURE 4: PROFILE OF RATINGS FOR SET FOUR:

Administrator Education (Ohio State)



Solid black line - Mean rating based upon 85 responses

Dotted black line - Mean rating of Module based on 8 responses

Comments included:

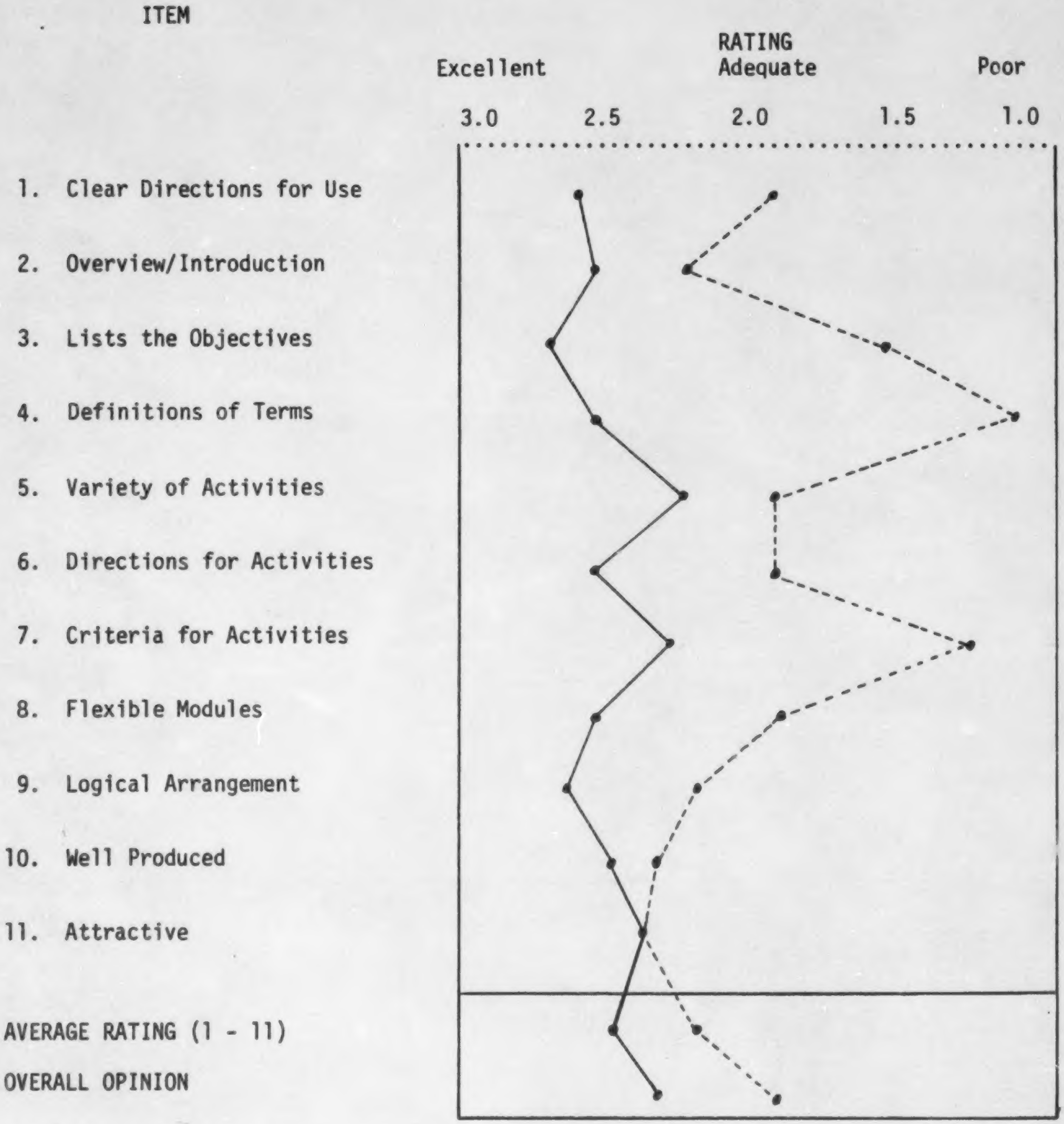
- I found it to be an excellent resource and very worthwhile reading.
- ...more like books of selected readings than a module for individual or classroom use.
- Excellent series and a wealth of information, but it doesn't have the conciseness that some of the CBI material has.
- Too specific and somewhat boring.

TABLE 7: SUMMARY OF RATINGS FOR MODULE SET FIVE:
Heart of Instruction (N=7)

Module Characteristic	Mean	Standard Deviation
1. Clear directions for use	1.8	0.4
2. Overview/introduction	2.1	0.6
3. Lists the objectives	1.5	0.5
4. Definitions of terms	1.0	----
5. Variety of activities	2.0	0.8
6. Directions for Activities	2.0	0.8
7. Criteria for activities	1.2	0.4
8. Flexible modules	1.8	0.8
9. Logical arrangement	2.0	0.8
10. Well produced	2.4	0.8
11. Attractive	2.3	0.7
Average rating (1 - 11)	2.0	0.5
Overall opinion	1.7	0.7

FIGURE 5: PROFILE OF RATINGS FOR SET FIVE:

Heart of Instruction



Solid black line - Mean rating based upon 85 responses

Dotted black line - Mean rating of Module based on 7 responses

SET SIX: VOCATIONAL EDUCATION CURRICULUM SPECIALIST (VECS-AIR)

Among the available sets of competency-based materials were two designed for the Vocational Education Curriculum Specialist credential. The set from the American Institutes for Research received the most attention probably because one of the developers of the materials attended the workshop and briefly outlined the purpose and scope of the project.

Dr. Fardig's bibliography gives the following information:

> American Institutes for Research in the Behavioral Sciences. Vocational Education Curriculum Specialist (VECS). Palo Alto, CA: American Institutes for Research in the Behavioral Sciences, 1976. ED 132 376
>
> > This guide introduces a set of curriculum materials designed to train the potential vocational education curriculum specialist according to identified competencies in the conceptualization, design, implementation, management, and evaluation of vocational-technical education curriculums. The materials consist of 22 modules: six introductory modules to bring students with minimal preparation in vocational education to readiness for training in a core program; 15 core modules which constitute specialization units in curriculum development, implementation and evaluation; and one module that contains two seminars and a field experience unit.

Participant's evaluation of these materials is presented in Table 7 and a profile of the ratings relative to the norms is given in Figure 6. The average rating was 2.1 and the mean overall opinion was 1.8. The profile shows the VECS approach to be generally adequate but consistently somewhat below the norms.

There is no pretest but a "self-check" posttest is available. Some evaluators felt that because of the rigid lock-step group activities the materials could not be effectively used on an independent study basis. The average amount of time spent on the modules was 30 minutes with a range of 15 to 60 minutes. Five of the seven individuals (71%) said they might have use for the VECS modules and, likewise, 71% said they thought colleagues might use them.

Comments were generally brief and only lukewarm in approval:

- Activities are traditional of many present classroom practices.
- Good information and activities... I would reorganize.
- Seems like a traditional teaching type of experience in format and design.

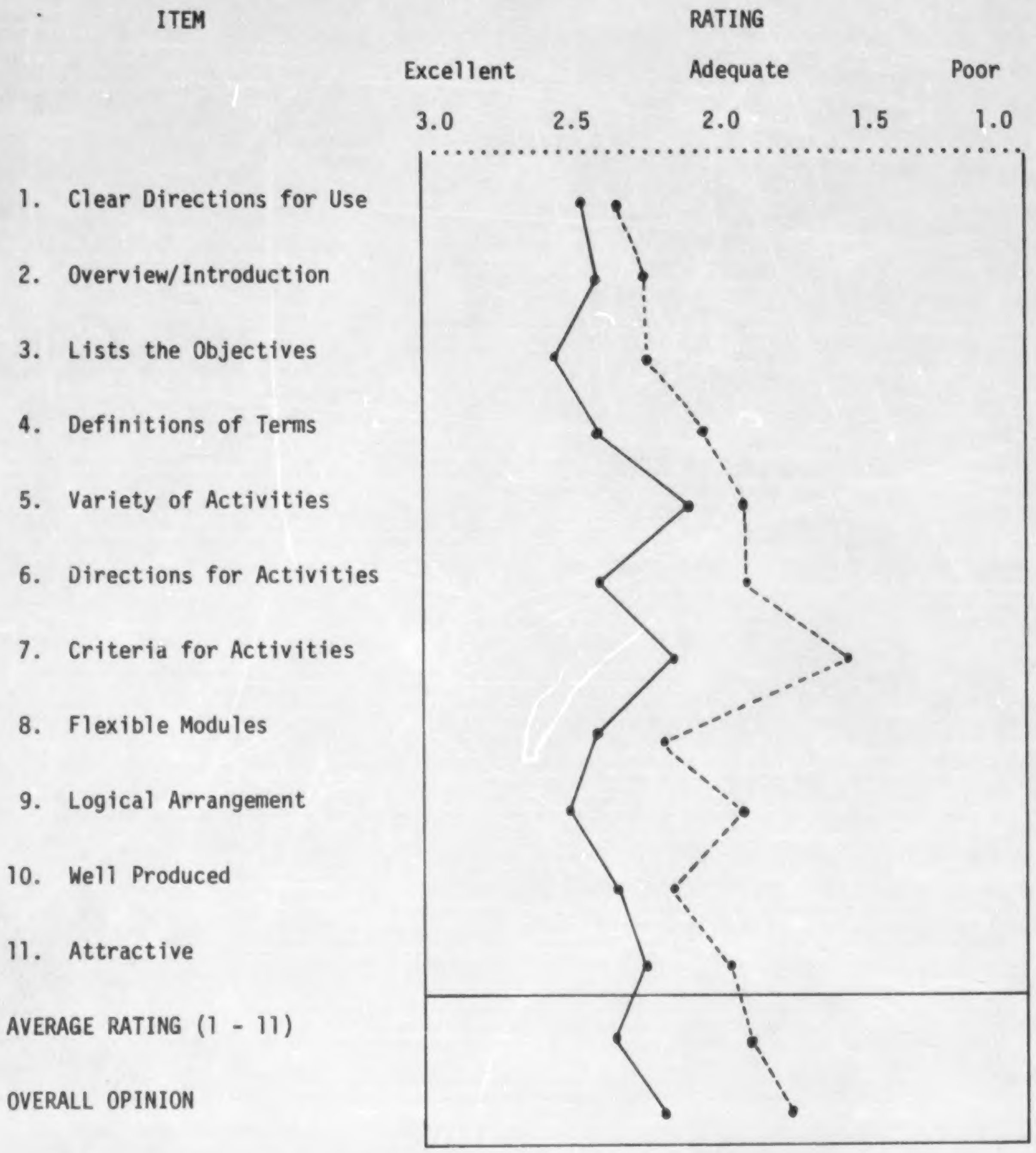
TABLE 8: SUMMARY OF RATINGS FOR MODULE SET SIX:

Vocational Education Curriculum Specialist -
American Institute Research (VECS-AIR) (N=7)

Module Characteristic	Mean	Standard Deviation
1. Clear directions for use	2.4	0.5
2. Overview/introduction	2.3	0.5
3. Lists the objectives	2.3	0.5
4. Definitions of terms	2.2	0.4
5. Variety of activities	2.0	0.6
6. Directions for activities	2.0	0.8
7. Criteria for activities	1.7	0.7
8. Flexible modules	2.2	0.4
9. Logical arrangement	2.0	0.6
10. Well produced	2.2	0.4
11. Attractive	2.1	0.3
Average rating (1 - 11)	2.1	0.4
Overall opinion	1.8	0.4

FIGURE 6: PROFILE OF RATINGS FOR SET SIX: VECS (AIR)

Vocational Education Curriculum Specialist -
American Institute Research



Solid black line - Mean rating based upon 85 responses

Dotted black line - Mean rating of Module based on 7 responses

SET EIGHT: COMMON CORE CURRICULUM (CCC)

Since some participants were writers of CCC modules and others had participated in the field review conducted last year, most of those who attended the workshop were quite familiar with the CCC modules. Thus, only four individuals chose to evaluate the CCC approach to competency-based instruction.

Dr. Fardig annotates these materials as follows:

> California State University, Fresno. Individualized Competency-Based Common Core Curriculum of Vocational Education. Fresno, CA: California State University, 1976.
>
> > This modular curriculum is intended for use in the preparation of vocational educators in all service areas. The 29 modules in the series are organized into seven categories:
> >
> > I Introduction to Vocational Education
> > II Cooperative Relations
> > III Vocational Students
> > IV Administration of Vocational Education
> > V Curriculum Design for Vocational Education
> > VI Stages and Structure in Curriculum Development
> > VII Evaluation and Research

Table 9 indicates that the average rating for items 1 - 11 was 2.5 and the mean overall opinion was also 2.5. The profile given in Figure 8 places the global ratings as very near the norms. Closer inspection of individual items on the profile reveals that the strengths of the CCC materials lie in the overview and logical arrangement of the modules while they are weak in definitions of technical terms, criteria for completion of activities and general production features such as printing and binding.

These modules do have pre- and posttests but unlike most of the other CBI sets evaluated at the workshop, they are not self-contained and require the use of outside references. The evaluators felt the necessity of outside references did not detract from the potential usefulness of the modules. An average of 47 minutes (30 to 60) was spent reviewing the materials and three of the four raters (75%) said they would use the materials and two of three said they felt colleagues might use them.

Among the comments:

- Well done - it might help to have the general instructions for using the module up front in each module. More permanent cover and binding needed. Some artwork on cover.
- Needs some specific instructions for those who have not used modules before. I need to review all of the modules in the set to make better judgments.
- Contains much good information, I like the information section.

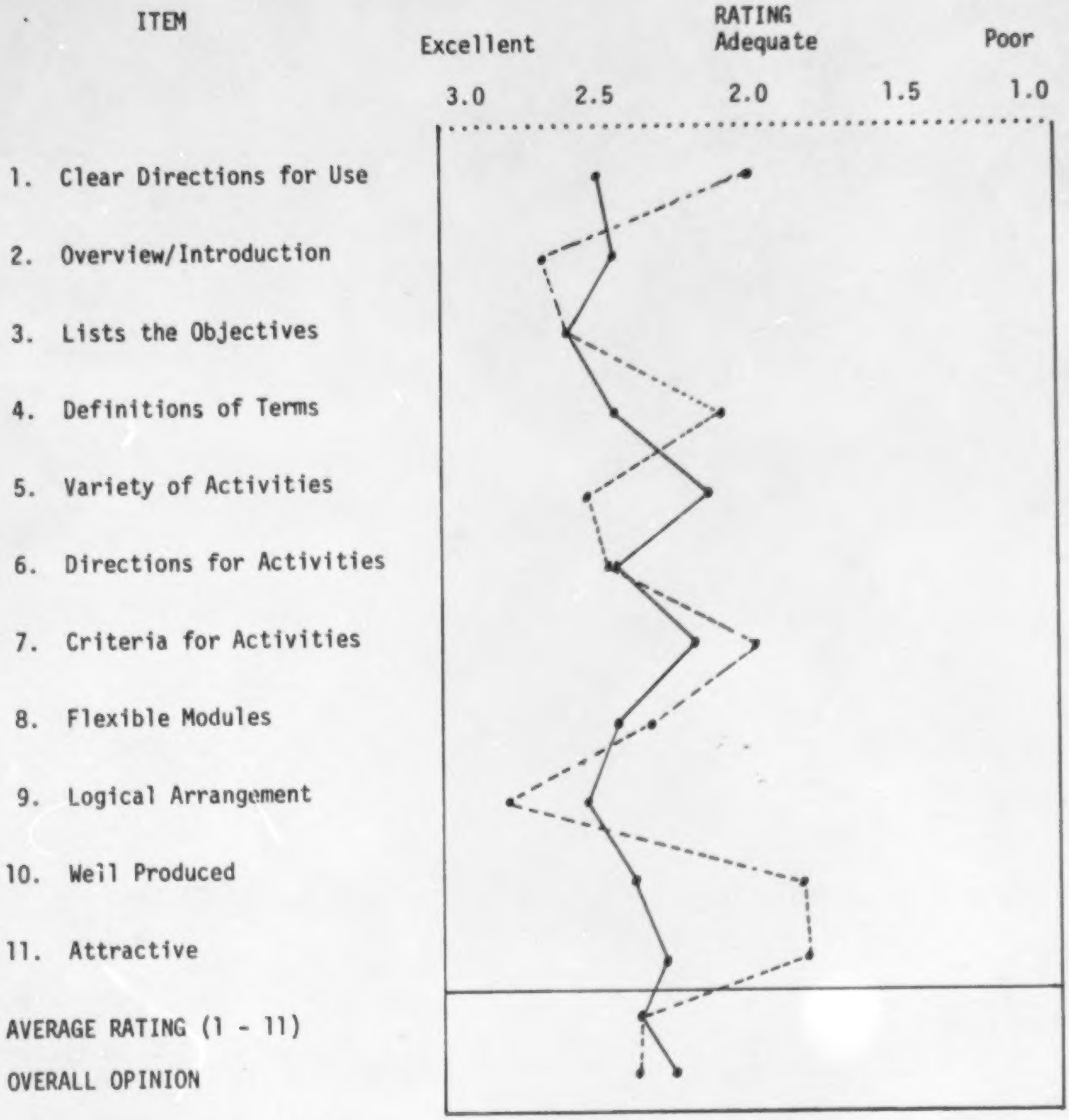
TABLE 9: SUMMARY OF RATINGS FOR MODULE SET EIGHT:

Common Core Curriculum (CCC) (N=4)

Module Characteristic	Mean	Standard Deviation
1. Clear directions for use	2.0	0.7
2. Overview/introduction	2.7	0.4
3. Lists the objectives	2.5	0.5
4. Definitions of terms	2.0	0.0
5. Variety of activities	2.5	0.5
6. Directions for activities	2.5	0.5
7. Criteria for activities	2.0	0.7
8. Flexible modules	2.3	0.5
9. Logical arrangement	2.8	0.4
10. Well produced	1.7	0.5
11. Attractive	1.7	0.5
Average rating (1 - 11)	2.5	0.3
Overall opinion	2.5	0.5

FIGURE 7: PROFILE OF RATINGS FOR SET EIGHT:

Common Core Curriculum (CCC)



Solid black line - Mean rating based upon 85 responses

Dotted black line - Mean rating of Module based on 4 responses

Summary

Twenty-one teacher educators, subject matter specialists and educational administrators reviewed and evaluated a total of 19 different sets of competency-based instructional materials at the November 1977 Common Core Curriculum project workshop. The Vocational Education materials were obtained via a computer-based literature search conducted by Dr. Glen Fardig. Sets from literally across the nation - from Florida to Rhode Island, and from Washington to California - were included.

Each participant selected four sets for evaluation. A total of 85 useable evaluations were obtained. The evaluations covered basic characteristics of the modules such as organization, activities, flexibility and attractiveness. Participants also indicated whether they would consider using the materials in their teaching activities and made an overall rating of the quality of the material.

Materials receiving the highest ratings were (1) the Performance Based Teacher Education (PBTE) modules from Ohio State, (2) the Preservice Occupational Program (POP) kits from the Illinois Department of Education and (3) the Common Core Curriculum (CCC) developed at California State University, Fresno. Each of these approaches cover a wide and diverse selection of skills, content and competencies. They differ most in that PBTE and POP are self-contained, while the CCC requires the use of outside references.

Other sets of materials evaluated as quite valuable included (1) the Administrator Education modules from Virginia Polytechnic Institute and a different set from Ohio State, (2) The Wayne State kits and (3) the Post-Secondary Teacher Training modules from the Texas Education Agency.

Less valuable approaches were (1) the B-2 Teacher Training modules from the Florida Department of Education, (2) the non-CBI "Heart of Instruction" series from The Ohio Department of Education, and (3) the Vocational Education Curriculum Specialist modules from the American Institutes for Research.

Caveats for these conclusions must be noted. Methodologically speaking, evaluators were not randomly assigned to the various sets and some sets had as many as 11 raters while others had only a single evaluator. The reliability and validity of the evaluation form are unknown. The sophistication of the evaluators concerning competency-based instruction and their prior experience using CBI approaches varied widely. These and other background factors are potential influences on the ratings given to the modules to an unknown degree.

Yet, in sum, the project does represent the first known attempt to gather together, initially evaluate and make comparisons among a sample of CBI materials obtained via a nation-wide search.

APPENDICES

WORKSHOP
Common Core Curriculum of Vocational Education
Airport Marina Hotel
Fresno, California
November 17 - 18, 1977

PURPOSE:

To identify, review and evaluate competency-based vocational education materials.
To bring together vocational teacher educators in the fields of agriculture, business, home economics, and industrial education for analyses of current educational resources.

Thursday (November 17)

9:00	Registration
9:30	Opening Session - Dr. Jeffrey Reyes Introduction
9:45	Overview of the CBI Scene and Results of the Literature Search - Dr. Glen Fardig
10:45	Break
11:00	Individualized Instruction in Vocational Education Dr. Sandra Miller
12:00	Lunch
1:15	Comments on Vocational Education Material Learning Activity Packets (LAPS) San Diego City Schools - Hal Marsters Vocational Education Curriculum Specialist (VECS) American Institute for Research - Dr. Peter Dahl Performance Based Teacher Education The Center for Vocational Education, Ohio Dr. Glen Fardig Common Core Curriculum for Vocational Education (CCC) - California State University, Fresno - Dr. Gwen Cooke Teacher's Guide to a Vocational Education Common Core Curriculum California State Department of Education - Dr. Jeffrey Reyes
2:15	Problems of PBTE - Video tape
2:30	A system for Reviewing the Vocational Education Curriculum Materials - Dr. Terry Newell
2:45	Individual Work
4:15	Reports

Friday (November 18)

9:00	Preparing Teachers to Install and Manage Competency-Based Vocational Programs - Dr. Glen Fardig
10:00	Individual Work
12:00	Lunch
1:00	Slide-audio presentation - CBTE, Holland College, Canada
2:30	Reaction to Review Materials - Dr. Terry Newell
3:00	Adjourn Dissemination of bibliography and sample modules

Consultant:

Dr. Glen Fardig
Research and Development Specialist
The Center for Vocational Education,
The Ohio State University

Dr. Sandra W. Miller, Associate Professor
VTE - Home Economics Education, University of Tennessee

Project Director:

Gwen Cooke
Chairperson, Department of Home Economics
California State University, Fresno

Assistant To Director:

Maurine VanderGriend
Adjunct Professor, Home Economics
California State University, Fresno

Appendix B

CHECK LIST FOR REVIEW AND EVALUATION OF CBI MATERIALS

SET NUMBER	NAME	REVIEW	EVALUATE
1	VECS (AIR)	___	___
2	Guide Adult Educ	___	___
3	PBTE	___	___
4	CCC	___	___
5	FACIT	___	___
6	Kentucky Inservice	___	___
7	Wayne Kits	___	___
8	Dade County	___	___
9	B-2 Teacher	___	___
10	Heart of Instruct	___	___
11	Admin-Educ-Virginia	___	___
12	POP	___	___
13	Admin-Educ-Ohio	___	___
14	Texas Modules	___	___
15	VECS-Wash State	___	___
16	LAPS	___	___
17	Far West	___	___
18	Minn Ag Ed	___	___
19	Home Ec Ed	___	___

NAME ________________________________

Would you like to work with a group this afternoon? YES NO

Appendix C

EVALUATION OF COMMON CORE CURRICULUM WORKSHOP
NOVEMBER 1977

Area of Emphasis

Agricultural Education _____
Industrial Studies/Educ _____
Business Education _____
Home Economics Ed _____
Teacher Education _____
Administration _____
Other _____

For each of the following items circle the number which indicates the extent to which you had an interest in the topic or activity. Then indicate the value to you of the presentation or activity. (Thanks much for your help!!!)

1. Overview of CBI Scene (Dr. Fardig)

	Very much		Some		Little
INTEREST	5	4	3	2	1
VALUE	5	4	3	2	1

2. Individualized Instruction (Dr. Miller)

INTEREST	5	4	3	2	1
VALUE	5	4	3	2	1

3. Reviewing and Evaluating Materials

INTEREST	5	4	3	2	1
VALUE	5	4	3	2	1

4. Preparing Teachers to Install CBI Programs (Dr. Fardig)

INTEREST	5	4	3	2	1
VALUE	5	4	3	2	1

5. Entire Workshop

INTEREST	5	4	3	2	1
VALUE	5	4	3	2	1

6. Have you ever used competency-based materials? YES NO

7. Have you ever developed or written competency-based materials? YES NO

8. How likely were/are you to try CBI?

	Very likely	Probably	Maybe	I Doubt It	Never
Before	5	4	3	2	1
After workshop	5	4	3	2	1

Appendix D

VOCATIONAL TEACHER PROFESSIONAL COMPETENCIES ESSENTIAL TO INSTALLING AND CONDUCTING COMPETENCY-BASED INSTRUCTION

Competency-Based Instruction Project
Glen E. Fardig, Project Director
Joan Jones, Technical Assistant

The Center for Vocational Education
The Ohio State University
1960 Kenny Road
Columbus, Ohio 43210

April, 1977

Following is a list of teacher competencies identified as being essential to the installation and management of competency-based vocational instruction in secondary and post-secondary schools. The training of teachers to achieve these competencies is seen as an integral part of a total professional program of vocational teacher education.

The identification of the competencies was accomplished as one phase of the work of a federally-funded program of training for installing competency-based vocational instruction. The identification process included the following major steps:

1. A thorough search was made of the literature of teacher education and competency-based instruction (CBI). The teacher competencies for installing and managing CBI, as implied in the literature, were developed into a tentative list of 22 competency statements.
2. A group of 12 national leaders in competency-based education functioned as a DACUM committee to independently generate a list of 64 teacher competencies. The DACUM approach (Developing A Curriculum) utilizes modified small-group brainstorming techniques resulting in a chart of competencies.
3. The two lists were compared and merged. In this step, teacher educators eliminated redundencies, resolved inconsistencies, and strengthened any incomplete areas in the list.
4. The competency statements were finally refined as to wording, grouped for topical relationships, and organized in an approximate instructional sequence.

The competency statements presented here may be useful for a wide variety of teacher training purposes. They are also designed to fit the needs of a national curriculum development effort in vocational teacher education. As such, they are consistent with, and augment, the 384 performance elements which form the developmental base of The Center's Performance-Based Teacher Education Curricula.

1. Work with the program advisory committee
2. Assist with support staff development
3. Assist in school-wide curriculum planning and evaluation
4. Involve students in planning and evaluation

5. Inform staff and administrators about competency-based instruction
6. Inform referring schools and agencies about competency-based instruction
7. Orient the community to competency-based instruction
8. Assist in orienting accrediting personnel to competency-based instruction

9. Conduct (verify) task analysis
10. Establish criteria for competencies
11. Write terminal performance objectives
12. Sequence and cluster competencies for instruction

13. Write criterion-referenced measures
14. Establish data-collection procedures
15. Conduct student performance assessment

16. Write enabling objectives
17. Develop learning activities
18. Develop instructional media materials

19. Select available instructional materials
20. Adapt existing instructional materials
21. Revise materials in accordance with student interest and achievement

22. Estimate time and cost of program development process
23. Participate in the budgeting process
24. Participate in the cost accounting process

25. Provide a resource center
26. Develop a management system
27. Organize the physical facilities for competency-based instruction
28. Organize field-based instructional settings

29. Work with students individually
30. Help students identify preferred learning styles
31. Utilize teaching/learning strategies based on student needs
32. Schedule individual/group learning experiences
33. Provide for continuous performance feedback to students

34. Establish daily CBI progress reporting system for students
35. Assist with CBI institutional record-keeping/reporting system

36. Orient students to the competency-based program
37. Enroll students in the competency-based program
38. Counsel/advise students in self-assessment of their progress through the CBI program
39. Assess student progress throughout the CBI program

40. Provide for the development of competency-based programs unique to individual students' needs.
41. Guide students' exit from the program
42. Assist with collecting and interpreting student follow-up data for program improvement
43. Involve business and industry in program renewal
44. Revise the CBI program on the basis of student interest and achievement
45. Implement a personal program of professional development in the area of competency-based instruction

A preliminary review of the identified teacher competencies has been made for the purpose of clustering them into instructional modules. Using the format and structure of The Center's Performance-Based Teacher Education Materials, 12 modules would need to be developed to deliver on all 45 competencies. A tentative listing of the module titles follows.

Module 1 Develop Plans for Implementing Competency-Based Instruction in Your Vocational Program

Module 2 Orient the School and Community to Competency-Based Instruction

Module 3 Specify Occupational Competencies Desired of Students

Module 4 Assess Student Performance in a Competency-Based Program

Module 5 Provide Competency-Based Instructional Materials

Module 6 Manage Resource Requirements for Competency-Based Instruction

Module 7 Organize the Vocational Program to Install Competency-Based Instruction

Module 8 Manage the Learning Environment

Module 9	Maintain a Record-Keeping System
Module 10	Orient Students to the Competency-Based Program
Module 11	Guide Students Through the Competency-Based Program
Module 12	Evaluate Program Effectiveness for Improvement

Appendix E

AN ANNOTATED BIBLIOGRAPHY OF COMPETENCY-BASED VOCATIONAL INSTRUCTION: PRELIMINARY VERSION

Prepared as a part of the project
A Program of Training for Installing
Competency-Based Vocational Instruction

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This project is sponsored by The Center for Vocational Education in cooperation with the U.S. Office of Education under provisions of EPDA Part F, Section 553, and the Ohio State Board for Vocational Education.

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FOREWORD

Materials included in this bibliography were collected for use in the project, A Program of Training for Installing Competency-Based Vocational Instruction. The broad objectives of this project are to assist teacher educators to --

- understand the basic concepts and rationale underlying competency-based vocational education (CBI).
- identify unique professional competencies needed by teachers to install and implement CBI.
- be familiar with the alternative approaches to implementing competency-based vocational instruction in secondary and post-secondary schools.
- locate and evaluate competency-based instructional materials appropriate to vocational programs.
- design and implement a training program for preparing vocational teachers for competency-based instruction.
- develop instructional strategies and materials for a teacher training program in CBI.
- serve effectively as resource persons, advisors, and evaluators of CBI.

It is intended that this bibliography contribute in some way to each of the above objectives. This preliminary version is for use and discussion during the several project activities. It will be augmented and revised as additional information is collected, and a refined version produced as part of the final report of the project. Comments and suggestions for additions to the bibliography are invited.

It should be noted that the terminology of this area of education is still under development and is sometimes confusing. The terms "competency-based instruction (CBI): and "performance-based instruction" are used synonymously by most writers, while others make a distinction between the two. To further complicate matters, quite often the general term "competency-based education" is used when the author is really describing the more specific application of performance-based teacher education (PBTE). This bibliography attempts to maintain clarity between the concepts. The literature of PBTE is much more voluminous than that of CBI; therefore it has often been necessary to derive ideas from the field of teacher education and make the application to competency-based vocational instruction.

In the following annotated listing an "ED" number following an entry indicates microfiche or hard copy availability from ERIC Document Reproduction Service, Leasco Information Products, 4827 Rugby Avenue, Bethesda, Maryland 20014. Entries followed by a "VT" number can also be ordered through ERIC by cross-reference with their "ED" numbers. "VT" numbers indicate retrieval through Abstracts of Instructional and Research Materials (AIM/ARM) at The Center for Vocational Education.

Part I Competency-Based Instruction: General Theory and Overviews

This section includes books, articles, presentations, and bibliographies which provide the vocational teacher/implementer with information about the conceptual base of CBI, an overview of the CBI movement, the state-of-the-art, and current controversies regarding the competency-based approach to instruction.

Adams, Robert E. "Building Competency Models: One Approach to Occupational Analysis." Canadian Vocational Journal. 10(November 1974): 36-41, 54.

Describes a DACUM competency model as a form of occupational analysis and an evaluation instrument, and discusses chart construction via a committee of experts (incumbent workers) supported by a coordinator. Discusses (1) general areas of competence, (2) the first "band" of competencies, (3) remaining "bands", (4) skill review, (5) sequencing, (6) structuring, (7) vertical scanning, and (8) chart preparation.

Bjorkquist, David. What Vocational Education Teachers Should Know About Individualizing Instruction. Columbus, OH: The Center for Vocational Education, The Ohio State University, 1971. (VT 013 713; ED 057 184)

An excellent general overview of the elements of individualized instruction which form the foundation of competency-based instruction.

Burns, Richard W. and Joe Lars Klingstedt, eds. Competency-Based Education: An Introduction. Englewood Cliffs, NJ: Educational Technology Publications, 1973.

Articles reprinted from Educational Technology, November 1972. Includes the following titles:

- Philosophical Basis for Competency-Based Education.
- Psychological Implications of Competency-Based Education.
- Secondary Curriculum Design and Competency-Based Education.
- Competency-Based Education and the Open Classroom.
- Implications of Competency-Based Education for Urban Children.

Carpenter, Bruce. "Performance-Based Instruction." Paper presented at the Maryland Vocational-Technical Education Conference, 1976.

Discusses the underlying principles of CBI, the improvement of vocational education through CBI, and CBI procedures.

Competency-Based Education--An Annotated Bibliography. (Fred W. Harrington, Project Director). Charleston, WV: West Virginia State Department of Education, Bureau of Vocational, Technical, and Adult Education, 1974. (VT 102 044)

Listed materials were collected for EPDA Project No. WV-73-7, "Familiarizing Teachers with New Curriculum Materials." Lists competency-based curriculum models and materials to assist fulfillment of the project objective: "to train vocational teachers in competency-based curriculum models so that they could apply this knowledge of new curricular materials to the development of new instruction."

A Curriculum Effort in the Implementation of Competency-Based Vocational Education. (Bruce Carpenter, Project Director). Lexington, KY: University of Kentucky, Curriculum Development Center, 1976.

A set of 11 modules and an instructor's manual designed to prepare teachers of competency-based vocational education. The modules include slide/tape presentations and learning activities. The module categories are:

1. Defining CBVE
2. Identifying Process Steps of Kentucky CBVE Plan
3. Identifying Products of Kentucky CBVE Plan
4. Explaining the Model for Developing a Catalog of Objectives
5. Using the Catalog of Objectives
6. Developing a Module
7. Organizing Learning Centers
8. Preparing to Use Modules
9. Evaluating Students
10. Managing Instruction
11. Orienting Students to Competency-Based Individualized Instruction
12. Identifying the Role of the Regional Contact Person

Goodlad, John I. et al. Behind the Classroom Door. Worthington, OH: Charles A. Jones Publishing Co., 1970. (VT 024 392)

Focuses on organizational, curricular, and instructional recommendations for schools. Implies a need for an educational system similar to CBI. A tripartite (industry, schools, universities) partnership for educational improvement is suggested.

Hines, R. *Performance-Based Education: An Annotated Bibliography*. Severn, MD: Maryland Research Coordinating Unit, Data Center, North Arundel Vocational-Technical Center, 1976.

A bibliography divided into the following sections: (1) ERIC Report Literature, (2) AIM/ARM Report Literature, and (3) Journal Articles.

Hosford, Philip L. and Angela Schroder. *Southwestern Leadership Conference on Performance-Based Education*. Las Cruces, NM: New Mexico State University, Bureau of Educational Research, 1974. (ED 091 372)

Describes the objectives for the conference and includes a section of selected quotes from participants. Objectives included: "to assist leaders from all levels (in)...implementing PBE programs" and "to assist operators of PBE...programs." Participants quoted include Karl Massanari, Ed Gaussion, and Helen Hurriger.

Jelden, David L. "LAPS: Applications to Vocational and Technical Teacher Education." *Journal of Industrial Teacher Education*. 10(Spring 1973): 73-87.

Provides historical background about curriculum structure, principles and concepts, analysis, and guidance for teachers in the preparation and use of LAPS that offer time-free instruction based upon exit competency.

Johnson, Barbara. *Individualizing Instruction for Competency-Based Education*. Tallahassee, FL: Florida Department of Education, 1975.

Discusses the following CBI-vocational education elements: goals, performance objectives, criterion-referenced tests, learning experiences, strategies, and organization, evaluation, and implications for instruction.

Johnson, Charles E. "Competency-Based and Common Education." Journal of Teacher Education. 25(Winter 1974): 355-356.

Compares practical characteristics of CBI with traditional programs.

Lessinger, Leon M. "Implications of Competency-Based Education for Urban Children." Educational Technology. 12(November 1972): 58-61.

Describes the primary implication of CBI for urban children as a revision of traditional assumptions about aptitude and success. CBI is discussed not as negating aptitude differences but as assuming that aptitude is a function of time and resources needed for "an operationalized description of competence." Maintains that CBI implies involvement and accountability, education "embedded" in the real world, cooperative education, and continuing education.

Magisos, Joel H. and Anne E. Stakelon. Individualization and Modularization of Vocational Education Instructional Materials: An Annotated Bibliography of Publications and Projects. Columbus, OH: The Center for Vocational Education, The Ohio State University, 1975.

Includes ERIC and AIM/ARM documents, journal articles, and current projects dealing with individualization and modularization of vocational education instructional materials. Useful for instructors who want an overview of current research and development in the field. All projects and publications abstracted deal with at least some of the essential elements of a competency-based instructional system.

Nagel, Thomas S. and Paul T. Richman. Competency-Based Instruction: A Strategy to Eliminate Failure--A Branching Programmed Text. Columbus, OH: Charles E. Merrill Publishing Co., 1972. (VT 029 633)

A branching programmed text in the philosophy and practice of a competency-based program, the characteristics of a module, and the comparison of traditional criterion-referenced, and competency-based programs.

Palardy, J. Michael and James E. Eiselle. "Competency-Based Education." The Clearing House. 46(May 1972): 545-548.

Discusses five assumptions underlying CBI and five stages within the CBI framework. States that CBI assumptions include: (1) behavioral outcomes descriptions, (2) differences among learners, (3) opportunities for learners to pursue personal goals, (4) involvement of community, home, etc., and (5) provision for CBI's own continuous evaluation and revision. The five stages are: (1) listing behavioral outcomes, (2) diagnosis, (3) pretesting, (4) alternate learning activities, and (5) posttesting.

Pucel, David J. and George H. Copa. "Monitoring Individualized Student Progress in Vocational Education Programs." Educational Technology. 13(October 1973): 54-57.

Focuses on various procedures and ways of monitoring, recordkeeping, etc., within individualized vocational

programs. Includes discussion of "deriving and reporting program effectiveness and efficiency."

Pucel, David J. and W. C. Knaak. Individualizing Vocational and Technical Instruction. Columbus, OH: Charles E. Merrill Publishing Co., 1975.

Discusses instructional strategies, establishment and justification of program content, new teacher role, the development of objectives, monitoring, and managing. Includes sample job descriptions, sample differentiated staffing job descriptions, national college verb list, and a sample learning guide.

Roueche, John E. "Can Mastery Learning Be Humane? The Case for Performance-Based Instruction." Community College Review. 3(June 1975): 14-21.

Makes a case for performance-based instruction. Argues the "humanity" of individualization and a systematic approach in which all students can achieve competency within varied time periods.

Schalock, H. Del. "Competency-Based Vocational Education: Some Subtleties and Complexities." Paper presented at the EPDA Regional Workshop on Competency-Based Vocational Education, Lexington, Kentucky, 1976.

Discusses the following subtleties:

1. the meaning of the word "competence": mastery of knowledge, acquisition of skills, or application of knowledge and skills?

2. the nature of the indicators used as evidence of outcome achievement: verbal reports, printed measures, etc.?
3 "what level of performance should be required to claim mastery of...knowledge...or skills?"
4. individualization but accompanying depersonalization?

Schmieder, Alan A. and ERIC Clearinghouse on Teacher Education. Competency-Based Education: The State of the Scene. PBTE Monograph Series: No. 9. Washington, DC: American Association of Colleges for Teacher Education, 1973. (ED 073 046)

An overview of the CBE movement: the movement's origins, distinguishing characteristics, and potential. Current resources and important issues are also described. "The State of the States" and a CBE glossary are appended. Focus is on teacher education, but the report is a good historical reference on the CBE movement as a whole.

Turney, Mildred et al. "Competency-Based Education--What Is It?" Report to the Vice Chancellor by a Task Force appointed by the Faculty Senate, University of Wisconsin-Stout, Menomonie, Wisconsin, 1974. (ED 114 361)

Discusses issues and problems within the CBE movement.

Part II Competency-Based Instruction: Implementation Materials

This section includes materials which may aid vocational teachers in the process of implementing competency-based instruction. The materials deal with several aspects of this process, such as: orientation, management, adaptation and blending of CBI into traditional programs, individualization of instruction, and professional development.

Alvir, Howard P. "How to Individualize Your Classroom Instruction by Using Performance Objectives." Washington, DC: ERIC Clearinghouse on Teacher Education, 1972. (ED 074 032)

Discusses use of performance objectives in the classroom as well as in the individualization of a course. Useful for its lesson plan examples and critiques (auto mechanics and advertising courses) and its discussion of the transition from traditional teaching to performance-based education.

Andreyka, Robert E. "A Florida Approach to Competency-Based Vocational Teacher Education." Paper presented at the Competency-Based Vocational Leadership Conference, Lexington, Kentucky, 1976.

Discusses "attainments" from which more specific competencies for implementing CBI may be derived.

Aubertine, Horace. E. "Secondary Curriculum Design and Competency-Based Education." Education Technology. 12(November 1972): 38-39.

States that CBI teacher-installers should ideally be graduates of CBI teacher education programs. Discusses

alteration of teacher role: need to be able to relate information to competency objectives and to be involved in a feedback system and in assessment and curricular decisions.

Baird, Hugh and Dwayne Belt. "Some Organizational Problems Encountered in Implementing Competency-Based Education." Paper presented to the American Educational Research Association, New Orleans, Louisiana, 1973. (ED 084 221)

Although the focus of the document is implementation of CBTE programs, the organizational problems discussed can be applied with adjustment to implementation of CBI in vocational school programs. Examples of problems encountered are: (1) decision-making by staff, (2) identification of teacher competencies, (3) the teacher-as-counselor, and (4) staff training.

Berger, Robert J. and Ralph A. Hanson. "Quality Assurance in Large Scale Installations of Criterion Referenced Instructional Programs." Paper presented at the National Council on Measurement in Education Annual Meeting, New York, New York, 1971. (ED 059 547)

Discusses quality assurance as a way of maintaining performance levels during the operation of a criterion-referenced program. Analyzes the functions and requirements of such a system. Implementation procedures described have implications for management of CBI programs.

Block, J. H. and L. W. Anderson. Mastery Learning in Classroom Instruction. (A title in the "Current Topics in Classroom Instruction" series). New York, NY: Macmillan, 1975.

Elements of CBI are addressed in the discussion which also includes such topics as "grading for mastery" and traditional classroom control prescriptions. Discusses primarily the use of traditional classroom materials and resources for development of mastery teaching and learning.

Butler, F. Coit. *Instructional Systems Development for Vocational and Technical Training*. Englewood Cliffs, NJ: Educational Technology Publications, 1972. (VT 016 621)

Describes the curriculum development process from task analysis through curriculum implementation. Focuses on individualized instruction and instructional material development. Useful discussion of implementing and installing a systematized curriculum, including the teacher's role.

Champagne, D. and R. Goldman. *Handbook for Managing Individualized Learning in the Classroom*. Englewood Cliffs, NJ: Educational Technology Publications, 1975.

Focuses on teacher implementation and management of a custom-made individualized learning system in real, non-utopian public schools.

Development of a Curriculum Delivery System for Individualizing Instruction in Vocational-Technical Education. (B. E. Johnson, Project Director). Tallahassee, FL: Florida Department of Education, 1975.

A project in which a curriculum development task force of nine experts develop a theoretical framework. Criteria is developed for learning managers for implementation of individualized instruction in vocational-technical education. The project involves:

1. field testing guidelines and procedural manuals for individualized instruction
2. disseminating/diffusing V-TECS catalogs within Florida
3. discrimination among professional educators of Florida's individualization activities
4. determining the effectiveness of the guidelines for individualization
5. producing an instructional package for training vocational teachers in individualization of instruction within the framework of competency-based education
6. documenting project activities and making recommendations for follow-up

Diversified Occupations: Coordinator's Handbook. Clemson, SC: Clemson University, Vocational Education Media Center, 1973. (VT 100 450)

A handbook designed to assist school administrators and coordinators in the implementation of new D.O. programs and the more efficient operation of existing programs. Discusses "the role and qualifications of the D.O. coordinator."

Fardig, Glen E. Handbook for the Development of Vocational Education Modules. Lexington, KY: University of Kentucky, Curriculum Development Center of Kentucky, 1975.

Includes guidelines for the development of Kentucky model competency-based instructional modules in vocational education.

Johnson, R. and S. R. Johnson. Assuring Learning with Self-Instructional Packages or Up the Up Staircase. ______________________: Self-Instructional Packages, Inc., 1973.

Shows teachers how to produce a short instructional package to be tested and revised which will give students a time-free, individualized learning experience.

Lambert, Roger H. and O. Donald Meaders, eds. Guidelines: Individualizing Instruction in Agriculture. East Lansing, MI: Michigan State University, Department of Secondary Education; Lansing, MI: Michigan Department of Education, Division of Vocational Education.

Describes individualized instruction and provides examples from Product Agriculture Programs and Off-Farm Occupation Programs. Part II discusses requisite preparation and planning for development of individualized instruction.

Lineberry, Nina T. "Putting the Consortium LAPs to Work for Indvidualized Instruction." American Vocational Journal. 51(March 1976): 52-53.

Discusses the management of materials from the Interstate Distributive Education Curriculum Consortium (North Carolina). Includes a description of implementation within the existing program.

Place, Roger A. "The Performance-Based Curriculum." Speech delivered to the National Association of Secondary School Principals, Dallas, Texas, 1973. (ED 077 118)

Discusses the organization of a general competency-based curriculum in the Norfolk City Schools. Success of such a program is dependent on "involvement of teachers and first-level administrators in...the planning, development, and operation of the system."

Performance-Based Self-Paced Individualized Instructional System. Woodside, DE: Delaware State Department of Public Instruction, Kent Vocational-Technical District-Kent Center, 1975.

This is an in-process project that will result in instructor-built packages including performance objectives. The time-free packages will be delivered to Delaware schools upon completion of the project.

Peter, L. J. *Competencies for Teaching: Teacher Education*. Volume 4. Belmont, CA: Wadsworth Publishing Company, Inc., 1975.

Includes procedures for operating competency-based satellite in-service programs (college-based). Appendix lists competency objectives for writers of competency-based job or course descriptions. Program will result in graduates who can establish competency-based instruction in new (non-satellite) school district settings.

Pope, Billy N. *A Search for Common and Unique Teaching Skills and Knowledge in Occupational Education and Technology at the Secondary Level*. Austin, TX: Texas Education Agency, Division of Occupational Research and Development, Department of Occupational and Technical Education, 1971. (VT 100 180 - VT 100 182)

Participants (secondary vocational program teachers) were requested to rate each of 300 performance elements

on a five-point scale. Performance elements were clustered into performance areas as follows:

- Instruction - Planning, Execution, Evaluation
- Program - Planning, Development, Evaluation
- Management
- Guidance
- School-Community Relations
- Student Vocational Organization
- Professional Role and Development
- Coordination

Popham, E. L., A. F. Schrag, and W. Blockhus. A Teaching-Learning System for Business Education. New York, NY: McGraw-Hill, Inc., 1975.

A three-part training text for business education teachers regarding implementing CBI. Part 1 is a history and discussion of current philosophy of business education. Part 2 describes the CBI teaching-learning system. Part 3 applies the system to various subjects, such as typewriting, shorthand, and general business.

Talmadge, H. Systems of Individualized Education. (Part of Series on Contemporary Educational Issues). Berkeley, CA: National Society for the Study of Education, 1975.

Collection of essays on "individualization of instruction." Includes discussion of Wisconsin R&D Center's IGE, Pittsburgh Learning R&D Center's IPI and related programs, and PLAN from the American Institute for Research-Westinghouse Learning Corporation.

Utz, Robert T. et al. "A Comparative Analysis of Two Modes of Implementing Competency-Based Instructional Systems." Paper presented to the American Educational Research Association, Chicago, Illinois, 1974. (ED 089 468)

Findings related to the programs in Toledo Public and Toledo Diocesan Elementary Schools may be applicable to the implementation of any competencyqbased system.

Wall, James E. "Adapting Curriculums to Local Needs." Paper presented at a Training Institute for Curriculum Personnel Development, Fort Collins, Colorado, 1972. (VT 018 410; Ed 070 867)

Roles of instructors and administrators in adapting vocational-technical curricula to local schools are discussed. Useful information on typical adaptation problems. Stresses importance of a collaborative relationship between change agent and client system. Describes Havelock's model for innovation in education.

Part III Development of Instructional Materials for Competency-Based Instruction

Included here are materials designed to help CBI teachers/implementers develop, refine, or select CBI instructional materials appropriate for their own students, schools, and local needs.

Alvir, Howard P. "How to Clarify Classroom Instructional Goals Through Performance Objectives." Washington, DC: ERIC Clearinghouse on Teacher Education, 1971. (ED 056 994)

> Focuses on writing instructional objectives which relate to student's career objectives and industry's needs. Suggests implications for training programs in vocational education. Emphasizes the need for evaluation and feedback in a systems approach.

Ammerman, Harry L. and William H. Melching. The Derivation, Analysis, and Classification of Instructional Objectives. Fort Bliss, TX: Human Resources Research Office (HUMRRO), 1966.

> Useful discussion of a sequence for the development of instructional objectives as well as the extent to which a performance action should be described.

Brandau, George C. The Development of Individualized Instruction in Vocational Education. Final Report. Willingboro, NJ: Willingboro Public School District, 1970. (VT 014 100; ED 055 240)

> A training program to prepare teachers to develop their own learning packages and objectives for implementation in a vocational education program.

Burger, Laura J. and Judith J. Lambrecht. Handbook for Vocational Instructors Interested in Competency-Based Education. Minneapolis, MN: Minnesota Research Coordinating Unit for Vocational Education, 1974. (ED 118 979)

Provides a development model for teachers developing their own competency-based packages. Chapter Five suggests a system for teacher use in monitoring progress toward goals, keeping records, and assigning grades when a school so prescribes.

Drumheller, Sidney. Handbook of Curriculum Design for Individualized Instruction: A Systems Approach. Englewood Cliffs, NJ: Educational Technology Publications, 1971.

Purpose is to provide guidelines for the development of curriculum materials from behavioral objectives that, when plugged into the Drumheller Design Model, will determine the specifications for self-paced curriculum materials. Maintains that a curriculum designer can use the procedure to produce comprehensive sets of objectives and then spend necessary energy on development of learning experiences. Discusses implementation of the model.

Gorth, William Phillip and Hariharan Swaminathan. Criterion-Referenced Item Banking in Electronics: Appendix G. Final Report. Amherst, MA: University of Massachusetts, Center for Occupational Education, 1972. (ED 097 414)

A summary of products from a Performance Test Development Project. Products include: set of behavioral objectives, set of related criterion-referenced test items, and a course guide for using the objectives and test items. The process of objective and item development is implied.

Hambleton, Ronald K. and Francis Olszewski. Woodworking Objective and Test Item Bank: Appendix J. Final Report. Amherst, MA: University of Massachusetts, Center for Occupational Education, 1972. (ED 097 417)

Provides objective's groupings, evaluation criteria, descriptions of objectives development, and a list of materials needed to test each item. Two appendices include pretest materials and unit breakdowns.

Instructional Objectives Exchange: Home Economics, Grades 10-12. Los Angeles, CA: Center for the Study of Evaluation, Instructional Objectives Exchange, 1970. (VT 028 794)

An exchange providing listings upon request of performance objectives in many course areas in addition to Home Economics.

Klingstedt, Joe Lars. "Learning Modules for Competency-Based Education." Educational Technology. 12(November 1972): 29-31.

Describes the purpose of a learning module plus six major parts: objectives, pretest, rationale, learning alternatives, posttest, and resources.

Mager, Robert F. Preparing Instructional Objectives. Belmont, CA: Fearon Publishers, Inc., 1962. (VT 024 931)

The basic book on behavioral objectives. Clearly explains the development of accurate, understandable objectives. This is a programmed course.

Mager, Robert F. and Kenneth M. Beach, Jr. Developing Vocational Instruction. Belmont, CA: Fearon Publishers, Inc., 1967. (VT 017 469)

Includes a discussion of strategy, job description, task analysis, objectives, prerequisites, measurement, sequencing, and resources, as well as examples of the above.

Melching, W. H. et al. Deriving, Specifying, and Using Instructional Objectives. Fort Bliss, TX: Human Resources Research Office (HUMPRO), 1966.

This text is made up of four papers presented at a symposium on instructional objectives. Includes discussion of variations in peformance objectives, content validity, and measurement of success of instruction.

Miller, W. R. and F. M. Miller. "Developing Self-Instructional Modules." School Shop. 34(June 1975): 15-16.

The module format described for Drafting Technology can also be applied to other subjects. Includes introduction, objectives, pretest, learning experiences, and posttest.

A Modular Scheduling Program for Vocational-Technical Schools: A Demonstration Model. Final Report. Ebensburg, PA: Admiral Peary Area Vocational-Technical School, 1972.

Includes discussion of D.O.T. synthesis, computer software and hardware, instructional area floor plans, and examples of units, modules and tasks. Curriculum areas addressed are: Agriculture, Automotive, Building Construction, Metal and Materials, Service, and Technical.

Parsons, Jerry *et al*. "Criteria for Selecting, Evaluating, or Developing Learning Modules." *Educational Technology*. 16(February 1976): 31-32.

Discusses the structure and validation of learning modules including: objectives, subject matter, design characteristics, learning activities, adaptability, validity, and evaluation. The criteria set forth are helpful for teachers using, choosing, or designing learning modules.

Performance Objectives Development Project. Lansing, MI: Michigan State Department of Education, Vocational Education and Career Development Service, 1974. (ED 105 246)

Provides an overview of the Performance Objectives Development Project and guidelines for writing performance objectives. Lists recommended minimum vocational-technical performance objectives for Agriculture, DE, Health, Consumer and Homemaking, Occupational Home Economics, Office, Technical, T&I, and employability skills.

"Prepare Individualized Learning Packages." Charlottetown, Prince Edward Island: Holland College, Professional Development Program, n.d.

Competency-based instruction for teachers on designing individualized learning packages. Includes rationale, elaborations, learning activities, resources, and evaluation.

Schrag, Adele F. "Where to Begin in Writing Accounting Performance Goals." *Business Education Forum*. 29(May 1975): 20-21.

Discusses four items to be considered when writing performance goals: types of thought processes, communication skills, interpersonal behaviors, and specific job competencies to be developed.

Smith, Robert G., Jr. *The Development of Training Objectives*. Washington, DC: Human Resources Research Office (HUMRRO), 1964. (VT 023 783)

Useful for its definition of a system and for providing a procedure for developing a task inventory as well as its discussion of how to determine relevant job-related objectives. (A military training program.)

Task Inventory Exchange (TIE). Columbus, OH: The Center for Vocational Education, The Ohio State University, n.d.

Lists work activities in specific job or occupational areas. Also includes addresses for request copies.

Teal, Dean. "Individualized Instruction Packages Made Easy (How to Make Up Self-Instructional Materials for Cooperative Education Students)." *Industrial Education*. 64(January 1975): 28-30.

Describes a twelve-step procedure for co-op coordinators to develop specific individualized "paks". Includes forms for simplifying the procedure.

van Eijl, Pierre. "A Concise Building Scheme for Instructional Modules." *Educational Technology*. 16(February 1976): 33-35.

Discusses the main sections of a module as well as "the build-up of a module." A good developmental base.

Waks, S. "Modular Learning in Electrical Engineering." *Educational Technology Systems*. 4(1975): 215-222.

A learning module conceptual model for subjects in technology and engineering. Discusses integration of theory with laboratory experimentation as well as individualized learning with traditional instruction. Useful as background when developing instructional materials.

Wallace, Bertran F. "Modular Design: Another Method of Curriculum Development." American Vocational Journal. 47(May 1972): 42-44.

Provides ten procedures and a format for developing modules in any vocational subject.

Writing Performance Goals--Strategy and Prototypes: A Manual for Vocational and Technical Educators. New York, NY: McGraw-Hill Book Co., Gregg Division, n.d. (VT 014 645; ED 061 413)

A two-part manual for preparing performance objectives which also includes prototypes of performance objectives. Discusses characteristics and advantages, a system for writing, general directions (task sequence), general instruction plan, specific instruction plan, and implementation. Prototypes are provided for Agricultural Education, Business and Distributive Education, Health, Home Economics, Technical Education, and T&I.

Part IV Selected Available Instructional Materials for Competency-Based Occupational Training

The following listing of competency-based instructional materials includes competency-based resource guides, student guides, and curriculum guides. These have been selected as being well-developed materials that may meet the resource needs of secondary and post-secondary vocational teachers who are implementing CBI in their vocational programs. Teacher educators may find these materials useful as examples of available CBI resources. This listing is a preliminary one. It will be extended as more materials become available. Materials will be reviewed as they are received, and their characteristics will be annotated for future revisions of this list.

An Analysis of the Air Conditioning, Refrigerating and Heating Occupations. (Thomas L. Hindes, Project Director; William L. Ashley, Project Coordinator). Columbus, OH: The Ohio State University, Instructional Materials Laboratory, 1973-76.

> "The analysis data provided a basis for generating materials, course outlines, student performance objectives, and criterion measures as well as identifying specific supporting skills and knowledge in the academic subject areas." (Foreword)
>
> Each of the 75 booklets (approx.) was developed by occupational consultants with teacher verification. The booklets include: job description, resources, performance knowledge, decisions, cues (feedback), errors, subject matter related task statements,

performance modes, and appendices listing duties in general occupational areas.

Further booklets under development describe: Organization of Performance Activities, Example Test Items, Criterion Referenced Objectives, and Materials Required. These serve as aids to teachers in preparation of performance test items.

California Business Education Program Guide for Office and Distributive Occupations. Sacramento, CA: California State Department of Education, Bureau of Business Education, 1973. (ED 105 274)

This program guide includes a program model, job description, sample modules, and an implementation section.

Colorado Individualized Instruction Consortium Project. *Auto Mechanics, Welding, Air Conditioning/Refrigeration*. Fort Collins, CO: Larimer County Vocational-Technical Center, n.d.

These are competency-based learning modules which include: purpose, rationale, objectives, learning activities, media, information sheets, and post-evaluations. Further programs under development include Advanced Welding, MIG and TIG Welding, Electronics, Radio/TV Repair, and Drafting.

Competencies for Metals, Drafting. Sanford, NC: Sanford Research Project and Sanford Central High School, 1974.

The competencies listed are a synthesis of input from Sanford instructional staff, state curriculum guide, craft advisory committee, and RCA curriculum content specialists.

Cowan, E. Welding. Stillwater, OK: Oklahoma State Department of Vocational and Technical Education, Curriculum and Instructional Materials Center, 1974. (ED 112 002)

This curriculum guide for welding instruction contains sixteen units or modules divided into six sections: Introduction, Related Information, Blueprints, Oxyacetylene Welding, Arc Welding, and Gas Arc Welding. Modules are formatted as follows: terminal objectives, specific objectives, suggested activities, instructional materials, information sheet, transparency masters, assignment sheet, test, and test answers.

Day, Gerald F. and Herschbach, eds. T&I Resource Guides. College Park, MD: The Center for Research and Instructional Materials, Industrial Education Department, 1974-77. (VT 102 114)

A series of eleven resource guides available by June 1977. The series provides information designed to aid the classroom teacher in implementing a competency-based program. Each guide contains occupational information, instructions for developing a competency-based program, and annotated lists of instructional materials and resources. The guides address the following instructional areas: carpentry; graphic arts; electricity; electronics; auto mechanics; auto body and fender; machine shop; drafting; masonry; welding; and cosmetology. A series of LAP's are being developed and will be available during the school year 1977-78.

Day, G. F. and Tucker, J. *Carpentry Performance Objectives*. College Park, MD: The Center for Research and Instructional Materials, Industrial Education Department, 1976. (VT 103 040)

This source contains performance objectives which reflect up-to-date and verified competencies needed for job entry. Suggestions for use are included.

Handle X-Ray Equipment Safely. Science Department Learning Package. Charlottetown, Prince Edward Island: Holland College, 1975.

This competency-based learning package is dental radiography includes: rationale, "eleborations" (competencies), learning activities, resources, and evaluation (pre- and post-assessment forms and learning package evaluation forms). Other competency-based packages are also available.

Health/Cosmetology: Career Education Guide. Washington, DC: Dependents Schools (DOD), European Area, 1974. (ED 111 942)

These learning modules are grouped within health services and cosmetology and include behavioral objectives, module outline, list of materials and resources, and laboratory activities.

Housman, J. L. *et al*. *Individualized Study Guide on Agriculture: Student Guide*. Curriculum Materials for Agriculture Education. Blacksburg, VA: Virginia Polytechnic Institute, 1974. (VT 101 011)

This study guide contains information and lessons for training for entry-level jobs in beekeeping. Each lesson plan includes: activity (and performance objectives), information and project sheets, glossary and references, quizzes, and answer sheets.

Individualized Instruction in Occupational Education. Final Report. Raleigh, NC: North Carolina State Department of Public Education, Sanford Research Project, 1974.

Document provides an appendix of sample competency-based instructional materials from the Sanford Project. Includes masonry, carpentry, metals, drafting, typing, and distributive education task packages as well as sample competency statements, a unit test, an instructor's performance checklist, a student progress chart, vocational skill list, student survey form, and staff development plan.

Individualized Material for Industrial Education Based on the AVA Booklet, "A Guide to Improving Instruction in Industrial Arts." Detroit, MI: Wayne State University, n.d. (VT 011 399; ED 040 303)

These learning modules contain competency-based instructional elements. Format consists of objective, prerequisite, activity, and posttest.

Instructional Materials (no titles). Minneapolis, MN: Suburban Hennepin County Area Vocational-Technical Centers, District Office, 1975.

Sample available documents and materials include:

1. development of a teacher task inventory;
2. cumulative record form;
3. student certificate listing competency ratings within general competency blocks;

4. occupational description, program blocking, task detailing sheet, general performance objective, evaluation for the general and specific objective; and
5. "Individual Learning Pak" (Shielded metal arc welding - flat position).

Instructional Support System for Occupational Education in New York State (ISSOE). Albany, NY: New York State Education Department, The Office of Occupational Education, State University of New York at Albany, 1976.

> This curriculum in auto mechanics and office training (to be field tested 1976-1977) offers a performance-based organization pattern for courses and is composed of the following components: units, modules, tasks, code, major objectives, enabling objectives, suggested instructional content, and criterion-referenced measures. Actual learning activities are to be written by the teacher with the system as a base. The curricula was developed by the Cornell Institute for Research and Development in Occupational Education. Not generally available for purchase.

Interstate Distributive Education Curriculum Consortium (IDECC) LAPS. Columbus, OH: The Ohio State University, Ohio Distributive Education Materials Lab, 1974.

> A series of competency-based learning activity packages (LAPS) which reflect the following occupational areas: advertising; communications; display; human relations; mathematics; merchandising; operations/management;

product/service technology; and selling. Also included are such support materials as: The Ohio Handbook for Effective Use of LAPS; Student Orientation Handbook; and Learning-Manager's Guide.

Introduction to Technical Drafting; Carpentry; Basic Technical Drafting; Bricklaying. Sanford, NC: Sanford Research Project and Sanford Central High School, 1974.

Materials are divided into unit, task package, prerequisite, rationale, objective, learning activity, learning practice, and posttest.

Learning Guides. White Bear, MN: (916) Vocational-Technical Institute, 1972-76.

Guides (5,800 to date) include student data, terminal performance objective, micro-performance objective(s), agreement, learning steps and resources, and products/performance checklist.

Reeder, Dean. Vocational Agriculture 4: A Curriculum Guide--12th Grade. Revised. Stillwater, OK: Oklahoma State Department of Vocational and Technical Education, Curriculum and Instructional Materials Center, 1974. (ED 117 406)

This guide contains twenty-seven units organized into four modules: farm business management, leadership and careers, plant and soil science, and agricultural mechanics. Provides objectives, activities, information sheets, assignment and answer sheets, job sheets, and tests.

Skyline Career Development Center, Dallas Independent School District. Student Learning Plans. New York, NY: Harper & Row Publishers, Inc., 1976.

This is a series of 32 competency-based learning guides with such support documents as Teacher Implementation Plan and Evaluation Instruments. Student learning plans are available in the following areas:

Ornamental Horticulture
Floral Design
Ornamental Crop Production
Landscape/Turf Development
Child Development
Cosmetology
Carpentry
Masonry
Business Administration
Fashion Design
Apparel Assembly
Cutting Production
Merchandising
Pattern Drafting
Automotive Technology
Automotive Body Technology
Diesel Technology
Electricity
Plumbing
Materials Processing
Machine Shop
Welding
Sheet Metal
Technical Drafting
Music
Food Preparation
Shorthand
Typewriting
Simulated Office
Accounting
Communications Lab
Keypunch
Concepts of American Business

A Study for the Articulation of Competency-Based Curricula for the Coordination of Vocational-Technical Education Programs. Final Report. Baton Rouge, LA: Louisiana State Department of Education, 1976. (VT 102 839 - VT 102 843)

These competency-based curriculum guides for drafting, refrigeration and air conditioning, office, nursing, and electronics occupations include terminal and performance objectives and criterion-referenced measures. Several of the guides provide task lists and task analyses.

Time-Free Modular Competency-Based Curricula. Montgomery, AL: Link Educational Laboratories, 1973.

This curricula is divided into modularized units in 26 subject areas and includes learning objectives, learning activities, materials, tests, instructional resource lists, and a filmstrip and cassette for instructor orientation. The subject areas are as follows:

- Engine Tune-Up
- Brake & Front End
- Transmission Specialist
- Auto Body Repair
- Welding
- Industrial Electricity
- Basic Electronics
- Air Conditioning & Refrigeration
- Electrical Appliance Repair
- Basic Accounting
- Clerical Skills
- Secretarial Skills
- Small Gasoline Engine Repair
- Teacher Aide
- Solid Waste Operator
- Liquid Waste Operator
- Short Order Cook
- Executive Housekeeper

Radio & Television
Auto Service Technician
Drafting
Machine Shop Operations
Masonry (Home Building)
Plumbing (Home Building)
Carpentry (Home Building)
Electrical Wiring (Home Building)

Welding for Related Occupations. Hastings, NE: Central Technical Community College, n.d.

This text is used in course #140.10 currently implemented at CTCC. It was developed for students requiring a basic welding course and is not available for a welding tech. major. No inert gas welding processes are covered.

West Virginia Vocational Curriculum Laboratory. *Competency-Based Curriculum in Business and Office (Pre-Vocational), Home Management, and Nursing Assistant*. Charleston, WV: West Virginia Board of Education, Bureau of Vocational, Technical and Adult Education, 1976.

The curriculum includes teachers' sections, introductions, student competency sheets (and learning activities), supplements, and evaluation sheets. The business and office program differs in that it is pre-vocational. It is similarly formatted, but is designed to provide exploration experiences, not to develop proficiency in the occupational competencies. It could, however, provide resources for a competency-based vocational course of study. All materials are available from the Vocational Curriculum Laboratory, Cedar Lakes Conference Center, Ripley, WV 25271.

ADDENDUM

Mid-America Vocational Curriculum Consortium, Inc. (MAVCC). Curriculum Manuals (Teacher and Student Editions). Stillwater, OK: MAVCC, 1975-77.

Manuals are divided among major course areas which, in turn, are divided into instructional units. Each unit contains the following components:

1. statement of objectives (performance objectives)
2. teacher and student activities (activities and resources)
3. information sheets
4. transparency sheets
5. assignment sheets
6. job sheets
7. unit criterion-referenced test (test items sequenced to correlate with the objectives)
8. answers to unit test (teacher edition only)

MAVCC products available are:

- Occupational Child Development
- Agricultural Sales and Services
- Food Service: Production and Service
- Automotive Emission Control
- Snowmobile Repair

MAVCC products available by Fall 1977 are:

- Diesel Engines
- Attitude Development and Human Relations
- Dental Assistant
- Outboard Repair

- Lawn and Garden Equipment Repair
- Chainsaw Repair
- Residential Wiring
- Motorcycle Repair
- Basic Small Engine Repair
- Air Conditioning and Refrigeration

All above materials available through:

MAVCC
1515 West Sixth Avenue
Stillwater, OK 74074
(405) 377-2000

Appendix F

A BIBLIOGRAPHY OF RECENT CURRICULUM MATERIALS FOR PROFESSIONAL VOCATIONAL TEACHER EDUCATION

Prepared by

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FOREWORD

This bibliography is meant to be useful to vocational teacher educators as they plan, prepare, and implement teacher education programs. The items in the bibliography are adjudged to be suitable for the professional pedagogical component of teacher education common to vocational teachers in all occupational service areas. A few items deal with the newly important area of career education. Curriculum materials are included for preservice teacher education programs, in-service staff development programs, and graduate programs for vocational education supervisors. Materials for the development of programs for specific occupational areas (e.g., vocational agriculture, health services) have not been included; however, it should be noted here that there is much that is available of this description.

Items have been selected for inclusion in the bibliography if they are of fairly recent publication, are considered to be of a quality and type likely to be generally useful to teacher educators, and are readily available to the profession. Represented here are curriculum guides, syllabi, and series of instructional booklets or modules. A word of caution is in order; some materials that the developers describe as being competency-based do not in fact exhibit all the characteristics that are widely agreed to be basic to such an approach. Only by careful review of the actual materials can the teacher educator determine whether they will be of value to the particular situation.

Searches were made of the ERIC system, and AIM/ARM. Other materials were identified by a manual library search, and from the compiler's own files. Wherever possible, ERIC numbers are given. Otherwise, it will be necessary for the interested educator to go to the publisher or education agency cited for further information.

American Institutes for Research in the Behavioral Sciences. Vocational Education Curriculum Specialist (VECS). Palo Alto, CA: American Institutes for Research in the Behavioral Sciences, 1976. ED 132 376

This guide introduces a set of curriculum materials designed to train the potential vocational education curriculum specialist according to identified competencies in the conceptualization, design, implementation, management, and evaluation of vocational-technical education curriculums. The materials consist of 22 modules: six introductory modules to bring students with minimal preparation in vocational education to readiness for training in a core program; 15 core modules which constitute specialization units in curriculum development, implementation and evaluation; and one module that contains two seminars and a field experience unit.

All of the 22 modules are available for review on ERIC microfiche.

Basner, Shari; Boulmetis, John; and Verdi, Marie. A Curriculum Guide for Adult Educators Based on the Adult Performance Level Study. Kingston RI: University of Rhode Island, Curriculum Research and Development Center, 1976. ED 132 360

The purpose of this guide is to aid those in adult education to use the five content areas as the basis for instruction in literacy skills. The areas are: occupational knowledge, consumer economics, health, community resources, and government and law. For each area there are objectives, suggested learning activities, and a bibliography. In the appendix is an extensive "Behavioral Objectives Bank."

Byfield, Hal, et al., Career Education: Inservice Teacher Training Guide for Teachers, Administrators, and Counselors. Flagstaff, AZ: Northern Arizona University, 1975. 170 pp. ED 110 617

This guide was developed to establish a structural approach to training teachers, administrators, and counselors in the philosophy and techniques needed to integrate career education into instructional programs at all levels. It comprises a one-semester course, divided into 12 sessions.

The Center for Vocational Education, The Ohio State University. Professional Teacher Education Module Series. Athens, GA: American Association for Vocational Instructional Materials, University of Georgia, 1977.

This is a series of 100 performance-based teacher education (PBTE) learning packages focusing upon specific professional competencies of vocational teachers. The competencies upon which these modules are based were identified through research as being important to successful vocational teaching at both the secondary and post-secondary levels. The modules are suitable for the preparation of preservice and in-service teachers in all occupational areas. Organized into ten instructional categories, totaling approximately 4200 pages, the modules are basically self-contained, and each one provides learning experiences that integrate theory and application. Each module culminates with criterion-referenced assessment of the teacher's performance. A student guide, resource person's guide, and an implementation guide are available.

California State University, Fresno. Individualized Competency Based Common Core Curriculum of Vocational Education. Fresno, CA: California State University, 1976.

This modular curriculum is intended for use in the preparation of vocational educators in all service areas. The 29 modules in the series are organized into seven categories:

- I Introduction to Vocational Education
- II Cooperative Relations
- III Vocational Students
- IV Administration of Vocational Education
- V Curriculum Design for Vocational Education
- VI Stages and Structure in Curriculum Development
- VII Evaluation and Research

Career Education Center, The Florida State University. Florida's Approach to Competency-Based Individualized Teaching (FACIT). Tallahassee, FL: State of Florida, Department of Education, 1977.

This is a series of individualized learning packages (modules) for the training of preservice and in-service vocational teachers who are to implement individualized, competency-based programs. They are basically self-contained and self-instructional. There are six instructional components: Goal Setting (2 competencies); Objectives (4); Criterion Referenced Testing (6); Learning Experiences (11); Evaluation (3); Instructional Management (6).

Support materials include optional media for the instructional components, a filmstrip overview of the FACIT system, participant's guide, and facilitator's guide. Suitable for classroom or workshop use, the components require approximately 26 hours for the learner to complete.

Carpenter, Bruce, et al. Competency-Based Vocational Education: Inservice Education. Lexington, KY: Curriculum Development Center for Kentucky, University of Kentucky, 1976.

Primarily intended for use by vocational educators in an individualized workshop setting, these materials consist of 11 instructional modules. They are designed to assist teachers achieve the teaching skills involved in implementing competency-based vocational instruction. Aimed particularly at teachers who are to use the Kentucky CBE Modules and V-TECS catalogs of objectives, these materials may also be useful to others.

The modules are mostly self-contained and self-instructional. Support materials include instructional media for each module and an instructor's manual.

Cook, Fred S., et al. A Working Model of a Competency-Based Teacher Education System. Detroit, MI: Wayne State University, Department of Vocational and Applied Arts, 1973. ED 077 870

The program described here utilizes a series of teacher training modules called Wayne Kits. They are designed to deliver on 50 essential teacher competencies, with each competency containing a number of objectives. A systems approach is used to design the curricula. The Kits contain a variety of learning experiences, and are appropriate for the preparation of vocational teachers in all service areas.

Related descriptive documents are ED 076 747, and ED 076 746.

Dade County Public Schools. Performance Based Vocational Teacher Training Modules. Miami, FL: The School Board of Dade County, Vocational Curriculum Materials Service, 1973.

These materials have been specifically developed for beginning vocational teachers, particularly for those newly recruited from business and industry. While there is some reference to the local

educational setting, the materials can form a generally useful basis for vocational teacher training. The materials are self-contained, with most assessment procedures taking the form of paper and pencil response. At present there are nine modules in the series.

Davis, Dwight, and Borgen, Joe. Planning, Implementing, and Evaluating Career Education Programs. Bloomington, IL: McKnight Publishing Co., 1974.

This material was developed by practicing vocational administrators and curriculum specialists. Though the focus is on school level programs, the materials can be used as a basis for university-based instruction. These training materials come in a set of three-ring binders for convenient use.

Department of Education, State of Florida. B-2 Teacher Training Modules. Chipley, FL: Panhandle Area Educational Cooperative, 1970.

This is a series of 52 teacher education modules developed for general teacher education. They are organized into eight clusters: Teacher Aide Training, Planning Skills for Teachers, Presentation Skills for Teachers, Classroom Procedures, Questioning Skills, Assessment, Special Skills, and Assessing Educational Personnel. There are a number of required and optional materials related to the instructional modules. Most of the modules should be suitable for vocational teacher training.

Dull, Lloyd W., ed. The Heart of Instruction. Columbus, OH: Ohio Department of Education, Division of Vocational Education, 1977.

This is a series of 13 booklets designed to assist the vocational teacher and other members of the instructional team--counselors, supervisors, and administrators--to improve instruction. Each booklet is approximately 50 pages in length, and includes an overview

of the topic, compilation of practical resources, and suggested performance activities. Intended primarily for staff development of in-service vocational teachers, these materials can also be used for preservice teacher training.

The series covers such areas as the psychology of learning, selection and use of teaching strategies, communication, and techniques for discipline.

Eastern Arizona College. Modularization of Courses. Phoenix, AZ: Arizona State Department of Education, Division of Vocational Education, 1974. 70 pp. ED 108 714

Eastern Arizona College has developed a modularized system of instruction for five vocational courses. This document reviews the processes utilized in selecting courses to be modularized, deciding on the instructional units for each course, and choosing the instructional methods to be used.

Edwards, Charles; Harding, C. P.; and Loepp, Franzie. A Model Competency Based Program for the Preparation of Administrators of Occupational Career Education Programs. Springfield, IL: Illinois Office of Education, Division of Adult, Vocational and Technical Education, 1974.

This model program may provide ideas for developers of graduate programs in vocational supervision, though it is clearly designed for administrator education. The program structure and content are suitable for a range of vocational personnel. There are 35 instructional packages organized into the following five areas:

General Administrative
Program Planning
Personnel

Public Relations

Student Services

Even, Brenda B. Integrating Career Education into Teacher Preparation. Implementation Guide for College/University Use. Tucson, AZ: University of Arizona, 1976. 130 pp. ED 128 656

This implementation guide was developed to integrate career education into existing preservice teacher training courses. Integration schematics for core courses in the secondary teacher preparation program are presented.

Finch, Curtis R., et al. Competency-Based Administrator Education Materials. Blacksburg, VA: Virginia Polytechnic Institute and State University, Division of Vocational and Technical Education, 1977.

While this series of six modules is meant to be used for vocational administrator education, it may be of equal value as a basis for a graduate program for supervisors. The self-contained modules include information sheets, self-evaluation activities, simulation activities, and final competency assessment forms. A user's guide is available.

The titles of the modules are:

Motivating Vocational Education Personnel to Their Optimum Growth Potential

Implementing Competency-Based Instruction in Vocational Education

Planning Vocational Education Programs for the Disadvantaged and Handicapped

Formulating Goals and Objectives for Vocational Education Programs

Organizing and Conducting Staff Development Activities for Vocational Teachers

Preparing Local Plans for Administering Vocational Education

Hansen, L. Sunny; Klaurens, Mary K.; and Thompson, W. Wesley. Teacher Education for Career Education. St. Paul, MN: Minnesota Department of Education, Pupil Personnel Services Section, 1975. ED 119 002

This material is a product of project TECE (Teacher Education for Career Education). It is a series of three modules designed to meet the need for teacher competency in career education. The modules are aimed at prospective teachers, but may also be useful for in-service education. The module titles are:

I Orienting Prospective Teachers to Career Education

II Preparing Elementary Teachers for Career Education through Curriculum

III Preparing Secondary Teachers for Career Education through Curriculum

Illinois State University, Normal. Administration by Competency (ABC). Springfield, IL: Illinois State Board of Vocational Education and Rehabilitation, 1974. 149 pp. ED 120 442

The report describes a model competency-based graduate level, administrator education project designed to produce career education leaders at all educational levels, whose expertise is based upon competencies achieved rather than on hours spent in a classroom. Nearly two-thirds of the document consists of instructional materials utilized in the program. The instructional materials are available separately.

Interinstitutional Consortium for Career Education. *Career Education in Vocational Teacher Education*. Salem, OR: Interinstitutional Consortium for Career Education, 1976. 37 pp. ED 133 482

One of seven related reports dealing with program development in career education for teacher, counselor, and administrator preparation. The focus of this report is on infusing career education content into vocational teacher education programs. The first section of this report presents the results of the work done by the Vocational Education Task Force in identifying, collecting, and organizing a body of career education information for use in the preparation of vocational teachers. The second section provides an example of a vocational teacher education course syllabus infused with career education content, along with learning activities for the course.

Related documents are: ED 133 484, 133 483, 133 487, 133 485.

Kimmel, K., et al. *Career Guidance Resources*. Columbus, OH: The Center for Vocational Education, The Ohio State University, 1977. 339 pp.

This book consists of abstracts of over 500 currently published material resources and career development programs. The material abstracts are divided according to the major content and process aspects of a career development program. Three indexes--cross reference, alphabetical list of abstracted materials, and list of publishers--provide easy access to the abstracts.

Korb, A. W. *A Performance-Based Education Program in Vocational-Technical Teacher Education and Two-Year Vocational-Technical Associate Degree Programs*. *Final Report*. Havre, MT: Northern Montana College, 1975. 94 pp. ED 137 513

This report presents the results of a project, the goals of which included identifying performance goals and delivery systems for each department, translating existing courses into performance-based criteria, and implementing a feedback system for refining the program.

Loepp, Franzie, et al. *Preservice Occupational Program (POP)*. Springfield, IL: Illinois Office of Education, Division of Adult, Vocational and Technical Education, (1976).

A series of instruction materials (or modules) called "POP Kits" are available for the preservice preparation of vocational teachers in all service areas. As of this date, 32 POP Kits have been published, organized into 11 categories: program planning, guidance activities, instructional planning, execution of instruction, evaluation of instruction, coordination, youth organization, operational activities, public relations, professional role, and program evaluation. Basically self-contained, each POP Kit includes a rationale, pre-assessment form, learning activities, and evaluation procedures.

McCormack, Edward J.; Pool, Linda J.; and Tiedeman, David V. *A Handbook for the Preparation of Educational Personnel in Career Education*. Springfield, IL: Illinois Office of Education, Department of Adult, Vocational and Technical Education, 1976. 225 pp. ED 127 446

This handbook identifies and discusses some basic elements needed to create a preservice career education program on a university campus. It presents a model for the preparation of educational personnel in career education, and some management elements of the model. Resources needed for an instructional system are discussed. A 12-page bibliography is included.

McCowan, Richard J., and Mongerson, M. Duane, eds. Career Education Competencies. Buffalo, NY: State University of New York, 1976. 188 pp. ED 130 064

The career education objectives presented in this document can be used to train prospective teachers in the skills and techniques required to infuse career education in elementary, middle, and secondary schools. The 112 objectives are classified into three major areas: World of Work, Planning/Implementation, and Evaluation.

North Dakota State Board for Vocational Education. Career Development Intensified Teacher Training Workshop for North Dakota Teacher Educators. Handbook for Teacher Education. Bismarck, ND: North Dakota State Board for Vocational Education, 1976. 22 pp. ED 130 091

This handbook is designed for use by teacher educators from varied disciplines. Preservice teacher objectives are listed, and the document includes career education concepts to be taught to teacher education students. A "Teacher Career Education Course Outline" is part of the handbook.

Norton, Robert E., et al. Competency-Based Vocational Education Administrator Materials. Columbus, OH: The Center for Vocational Education, The Ohio State University, 1977.

This is an initial series of six self-contained, competency-based instructional modules. They are designed for use by both preservice and in-service vocational administrators, and may be equally useful to supervisors of vocational programs. Each module includes performance objectives, information sheets, learning activities, and feedback devices. The titles of the presently-available modules are:

Organize and Work with a Local Vocational Education Advisory Council

Supervise Vocational Education Personnel

Appraise the Personnel Development Needs of Teachers

Establish a Student Placement Service and Coordinate Follow-up Studies

Develop Local Plans for Vocational Education, Part I

Develop Local Plans for Vocational Education, Part II

Phelps, L. Allen. Competency-Based Inservice Education for Secondary School Personnel Serving Special Needs Students in Vocational Education. Urbana, IL: University of Illinois, Department of Vocational and Technical Education, 1976. 401 pp. ED 133 436

This is a report on the evaluation of a series of seven competency-based in-service modules designed for use by currently employed vocational and special educators. The modules focus on instructional development and on coordination of services and programming for special needs students in secondary programs. A description of each of the modules is included.

Popham, W. James, and Baker, Eva L. Teacher Competency Development System. Englewood Cliffs, NJ: Prentice-Hall, Inc., 1973.

A competency-based in-service teacher education program, treating the three major areas of curriculum, instruction, and evaluation. The focus is general teacher education, rather than vocational teacher education. The materials consist of 27 self-instructional modules and support materials, including the authors' "Systematic Instruction."

Porreca, Anthony G., and Stallard, John J. Common Affective Domain Competencies of Students Among Vocational Areas. Knoxville, TN: University of Tennessee, Occupational Research and Development Coordinating Unit, 1975. 70 pp. ED 117 440

The study attempts to verify the affective competencies which vocational-technical areas in common require of students. The affective competencies were identified so that they might become a major part of the learning sequence. Teachers need to be trained to provide learning experiences to help students develop these competencies.

Ramp, Wayne S., and Parker, James C. *Occupational Education Leadership: A Performance-Based Approach*. Carbondale, IL: Southern Illinois University, Carbondale, Department of Occupational Education, 1974.

The authors intend this to be used as a guidebook or handbook for university departments preparing occupational leaders. It is a curriculum guide and instructional resources manual, and includes lists of performances to be mastered, learning resources and activities, and assessment procedures. One section provides an introduction to the model and sets forth the model's overall framework and structure.

Texas Education Agency. *Post-Secondary Teacher Training Module*. Mount Pleasant, TX: Education Services Center, Region VIII, n.d.

These curriculum materials are in the form of competency-based teacher education modules. Each module may be used according to its sub-units or as a whole for in-service teacher training and traditional credit courses. The post-assessment procedures take the form of instructor-participant conferences, paper and pencil tests, or teacher performance. The complete set of materials includes the following individual modules:

CD-1	*Curriculum Development*	150 pp.
IS-2	*Instructional Strategies*	68 pp.

IT-3	Instructional Tactics 22 pp.
TC-4	Test Construction 42 pp.
E-5	Evaluation 53 pp.
ST-6	Student-Teacher Relationships 36 pp.
P-7	Professionalism 53 pp.
PR-8	Public Relations 40 pp.
PM-9	Program Management 54 pp.
HO-10	Health Occupations Education 149 pp.
TT-11	Team Teaching 54 pp.

University of Maine, School of Education. Competency-Performance Based Teacher Education for Vocational Teacher Educators. Recommended Modules - A Delphi Study. Gorham, ME: University of Maine, Portland-Gorham, School of Education, 1976. 56 pp. ED 124 546

> The results of a study that was organized to identify and prioritize two groups of teacher education modules for vocational education teachers are presented. Presents listings of modules important for a preservice program and a "survival skills" program for tradesmen entering teaching without formal teacher education.

University of Michigan, School of Education. Career Education Personnel Model. Comprehensive Model. Ann Arbor, MI: University of Michigan, School of Education, n.d.

> This document provides data and other information needed to develop competency-based curriculum for teacher education in preservice and in-service courses. It identifies teacher competencies and performance criteria, and contains implementation guidelines. VT 101 021

Vogler, Daniel E., and Patton, Gregory. The Development and Implementation of Pre-Service and In-Service Occupational Teacher Education Programs Designed to Meet Certification and Baccalaureate Degree Requirements. Ann Arbor, MI: University of Michigan, School of Education, 1974. 241 pp. ED 099 567

This occupational teacher education program was designed as an alternate approach to traditional occupational teacher preparation. A program profile is given, describing policies, recruitment procedures, course syllabi, and placement procedures.

Washington State University, College of Education. Curriculum for a Graduate Program to Prepare Vocational Education Curriculum Specialists (VECS). Pullman, WA: Washington State University, College of Education, 1976. ED 133 563

This is a series of eight instructional modules that form a graduate curriculum to prepare specialists in vocational education curriculum development. The module titles are: Introductory Module, Developing Curriculum, Needs Assessment, Curriculum Change, Organizing Instructional Strategies, Preparing Instructional Materials, Preparing Curriculum Evaluation, and Prompting Professional Growth and Staff Development.

An Installation Guide is available to provide direction for utilizing the modules (155 pp.). It also contains a listing of the competencies and performance objectives for each of the modules. The modules are available for review on ERIC microfiche.

Wick, S. K., and Kavanaugh, W. A. An Introduction to Teaching Vocational Technical Education, a Pre-service Teacher Training Course for Potential

Vocational Teachers in Minnesota. St. Paul, MN: Minnesota State Department of Education, Vocational Education, 1968. 372 pp. ED 024 785

This is a curriculum guide for a 24-credit hour preservice course, utilizing film, videotape, and seminar-discussion for vocational teachers prior to initial teaching. It includes audio and video scripts for each unit.

Appendix G

TRANSPARENCY MASTERS

Transparencies used in Competency Based Instruction Presentations

by

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April 1977

CBI

THE NEED AND THE PROMISE

INSTRUCTION BASED ON VALIDATED OCCUPATIONAL COMPETENCIES

BEGINNING WORKERS THAT ARE KNOWN TO BE COMPETENT IN THE SKILLS OF THEIR OCCUPATION

INSTRUCTION THAT IS EFFICIENT IN USE OF TIME, RESOURCES, AND ENERGY

INSTRUCTION THAT CAN BE TAILORED TO MEET THE NEEDS, INTERESTS, AND ABILITIES OF THE STUDENT

VOCATIONAL PROGRAMS THAT CAN BE HELD ACCOUNTABLE FOR PRODUCING COMPETENT WORKERS

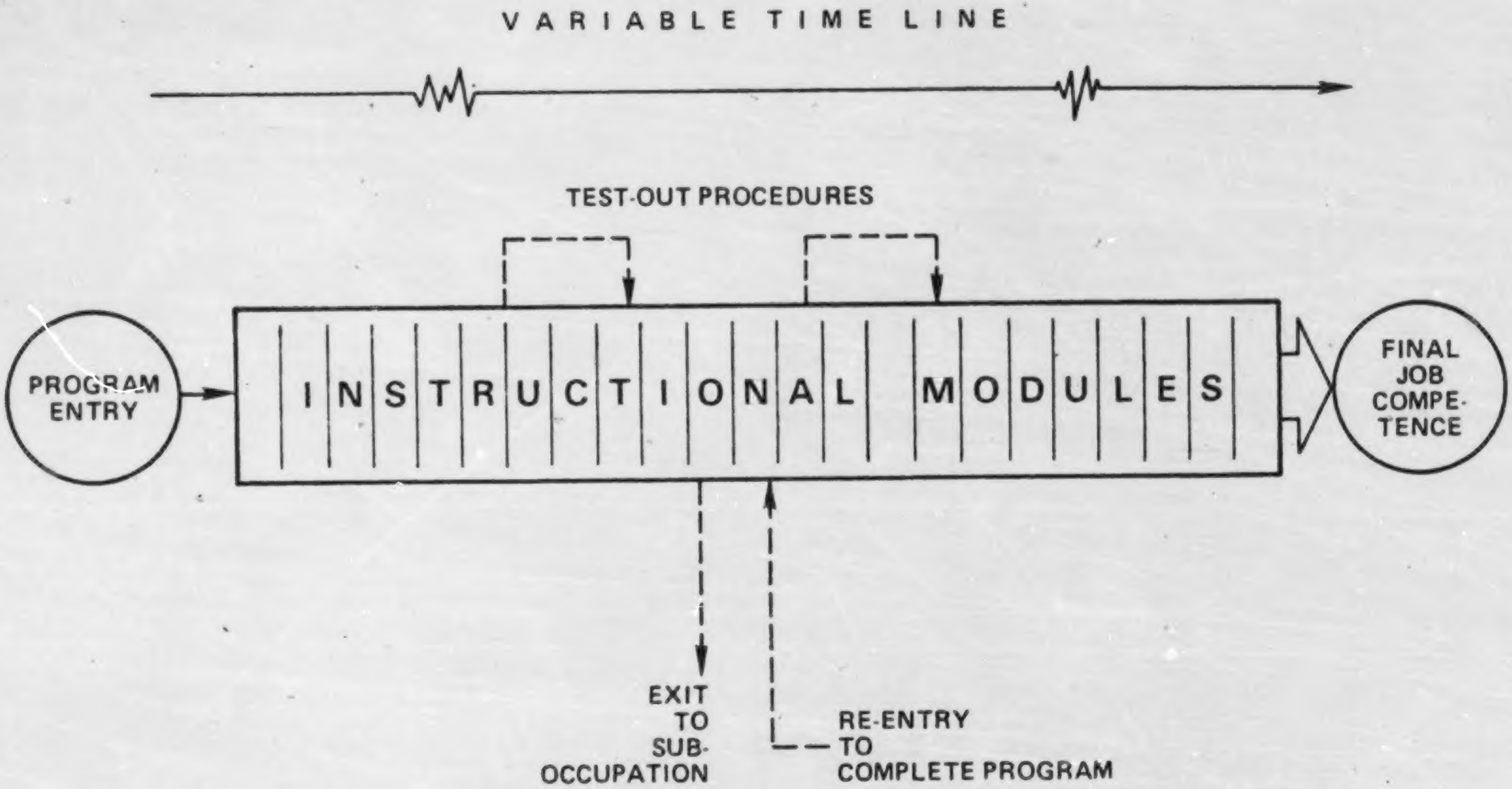
CHARACTERISTICS OF COMPETENCY-BASED VOCATIONAL EDUCATION

- INSTRUCTION IS INDIVIDUALIZED AND PERSONALIZED
- THE LEARNING EXPERIENCE OF THE INDIVIDUAL IS GUIDED BY FEEDBACK
- THE PROGRAM AS A WHOLE IS SYSTEMATIC
- EMPHASIS IS ON EXIT, NOT ENTRANCE REQUIREMENTS
- INSTRUCTION IS MODULARIZED
- THE STUDENT IS HELD ACCOUNTABLE FOR PERFORMANCE

PROGRAM COMPARISONS

CONVENTIONAL VOCATIONAL PROGRAMS	COMPETENCY-BASED VOCATIONAL PROGRAMS
1. CONTENT-BASED	COMPETENCY-BASED
2. TIME-BASED	PERFORMANCE-BASED
3. GROUP PACED	INDIVIDUALLY PACED
4. GROUP NEEDS	INDIVIDUAL NEEDS
5. DELAYED FEEDBACK	IMMEDIATE FEEDBACK
6. TEXTBOOK/WORKBOOK MATERIALS	MODULES AND MEDIA MATERIALS
7. LIMITED FIELD EXPERIENCE	LEARNING IN THE FIELD
8. LECTURES, DEMONSTRATIONS	ASSISTANCE OF RESOURCE PERSON
9. GENERAL OBJECTIVES	SPECIFIC OBJECTIVES
10. SUBJECTIVE CRITERIA	OBJECTIVE CRITERIA
11. NORM-REFERENCED	CRITERION-REFERENCED
12. FINAL GRADES	STUDENT COMPETENCE

MODEL OF COMPETENCY-BASED VOCATIONAL PROGRAM


VARIABLE TIME LINE
TEST-OUT PROCEDURES
PROGRAM ENTRY
INSTRUCTIONAL MODULES
FINAL JOB COMPETENCE
EXIT TO SUB-OCCUPATION
RE-ENTRY TO COMPLETE PROGRAM

BASIC DIFFERENCES

CBI vs PBTE

	CBI	PBTE
TARGET GROUPS	SECONDARY AND POST-SECONDARY VOCATIONAL STUDENTS	PRESERVICE AND IN-SERVICE TEACHERS
CONTENT FOCUS	TECHNICAL OCCUPATIONAL SKILLS AND KNOWLEDGE	PROFESSIONAL OR PEDAGOGICAL SKILLS AND KNOWLEDGE

ASSESSMENT OF STUDENT COMPETENCY

- USES STUDENT PERFORMANCE AS THE PRIMARY EVIDENCE OF COMPETENCE
- STRIVES FOR OBJECTIVITY
- TAKES PLACE WHEN THE STUDENT IS PREPARED FOR ASSESSMENT
- IS USED AS FEEDBACK FOR PROGRAM REFINEMENT

STUDENTS' RATE OF PROGRESS THROUGH THE CBI PROGRAM

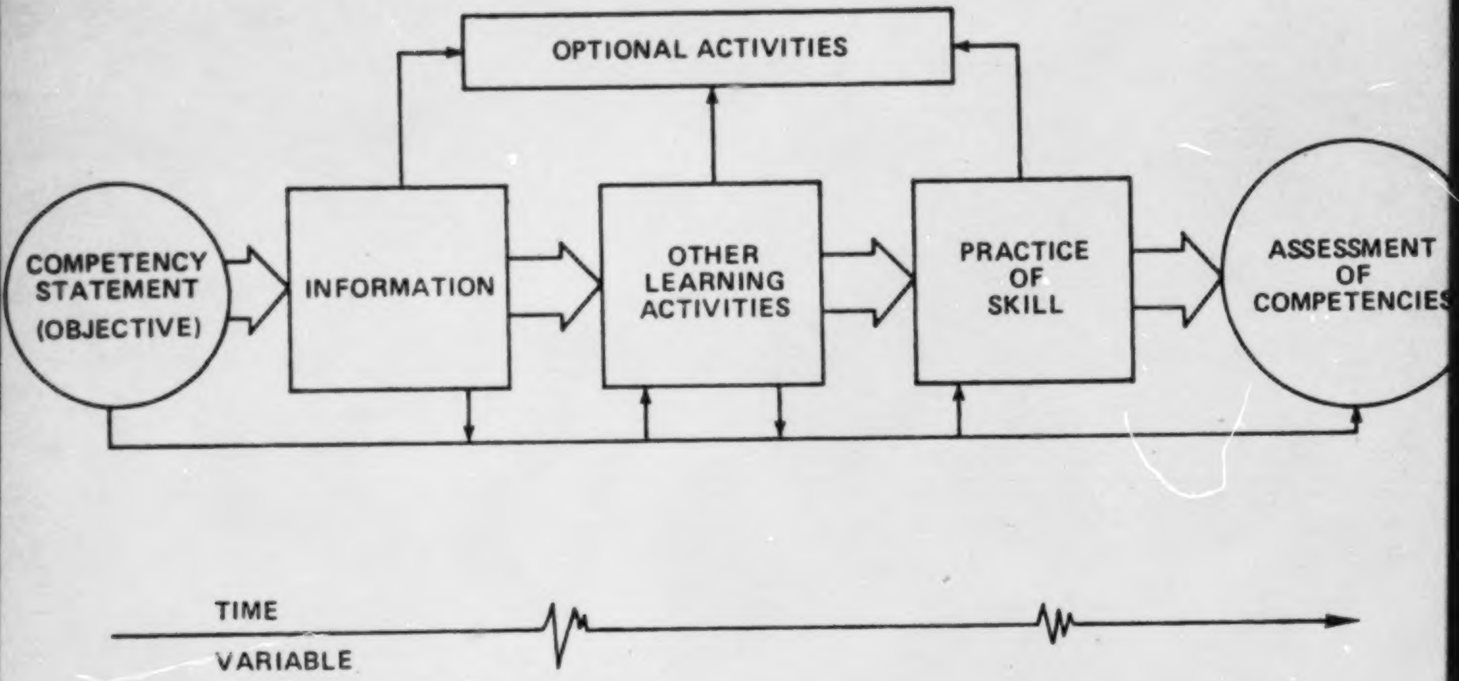
- IS DETERMINED BY DEMONSTRATED COMPETENCY RATHER THAN BY TIME OR COURSE COMPLETION
- MAY VARY WITH INDIVIDUAL STUDENT'S CHARACTERISTICS

THE COMPETENCY-BASED INSTRUCTIONAL PROGRAM

- IS DESIGNED TO HELP STUDENTS ACHIEVE THE SPECIFIED COMPETENCIES

- PROVIDES FOR A VARIETY OF STUDENT LEARNING STYLES AND RANGE OF STUDENT ABILITIES

TYPICAL INSTRUCTIONAL SEQUENCE
COMPETENCY - BASED VOCATIONAL PROGRAM


OPTIONAL ACTIVITIES
COMPETENCY STATEMENT (OBJECTIVE)
INFORMATION
OTHER LEARNING ACTIVITIES
PRACTICE OF SKILL
ASSESSMENT OF COMPETENCIES
TIME
VARIABLE

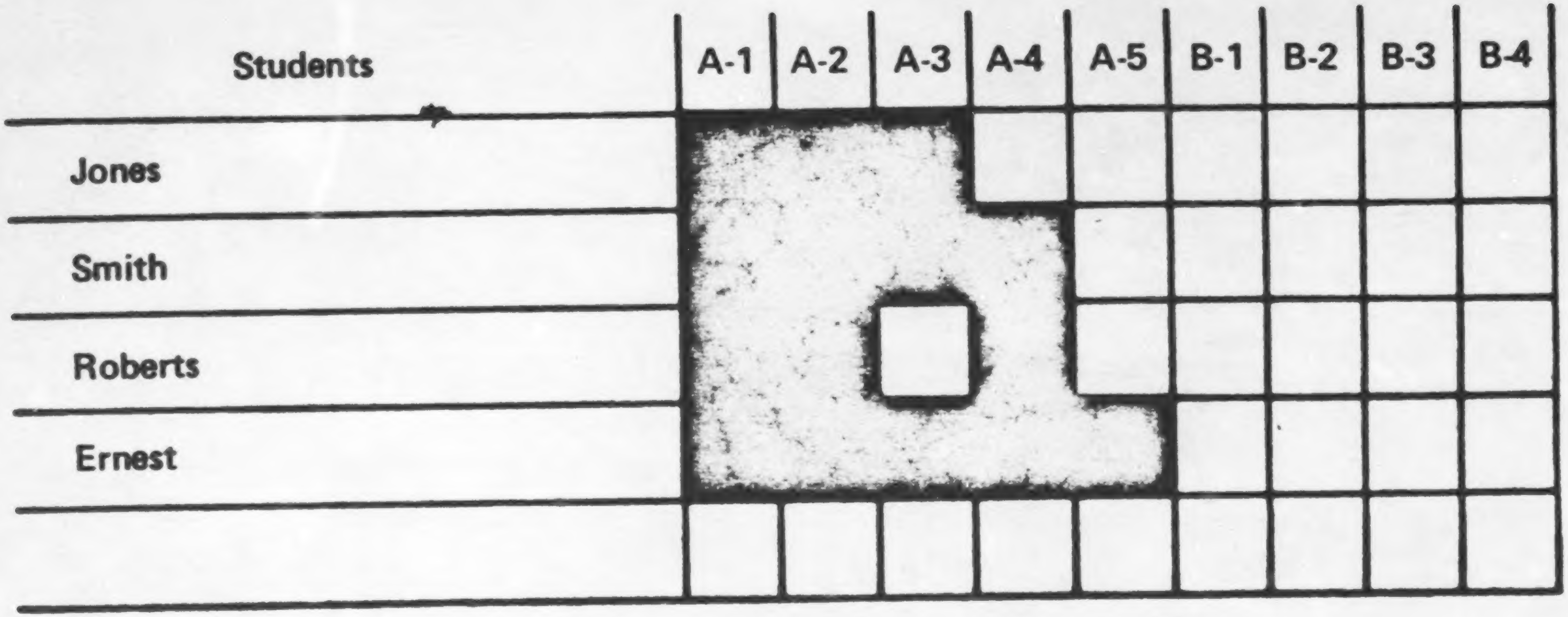
THE COMPETENCIES STUDENTS ARE TO DEMONSTRATE

- ARE DERIVED FROM AN ANALYSIS OF TASKS PERFORMED BY INCUMBENT WORKERS
- ARE STATED SO AS TO PERMIT ASSESSMENT OF STUDENT PERFORMANCE
- ARE EXPLAINED TO STUDENTS IN ADVANCE OF INSTRUCTION

THE MEASURES USED TO ASSESS STUDENT ACHIEVEMENT OF COMPETENCIES

- ARE BASED UPON THE SPECIFIED COMPETENCIES
- ARE EXPLICIT IN STATING EXPECTED LEVELS OF MASTERY AND CONDITIONS
- ARE EXPLAINED TO STUDENTS IN ADVANCE OF ASSESSMENT

CBI CLASS PROGRESS CHART



	Modules								
Students	A-1	A-2	A-3	A-4	A-5	B-1	B-2	B-3	B-4
Jones	▨	▨	▨						
Smith	▨	▨	▨	▨					
Roberts	▨	▨		▨	▨				
Ernest	▨	▨	▨	▨	▨				

IMPLEMENTING TEACHER TRAINING FOR INSTALLING CBI

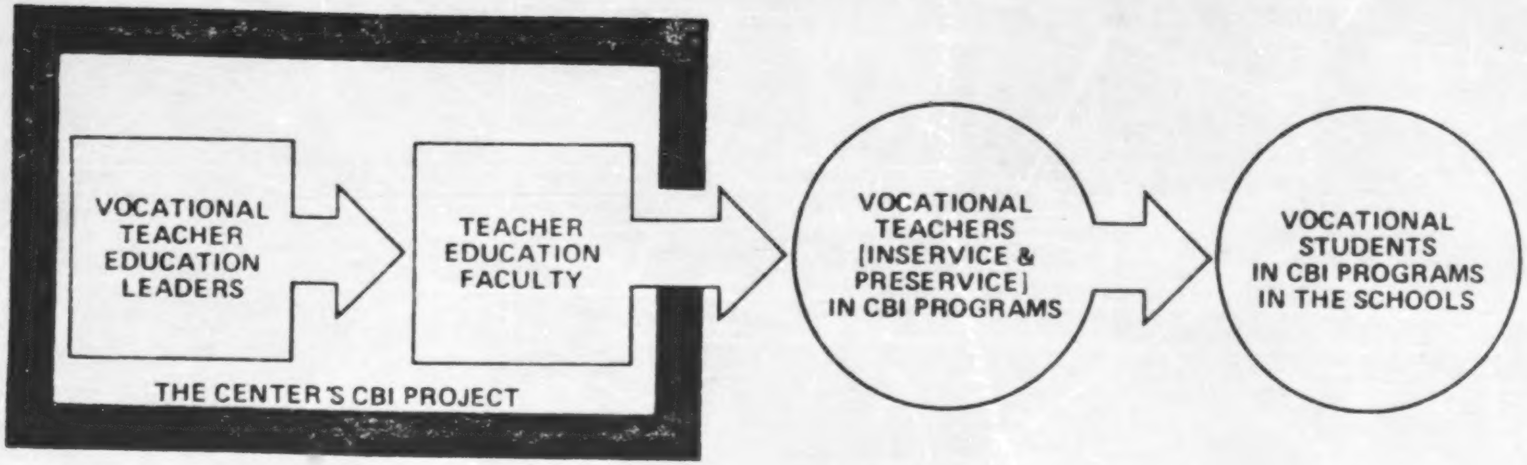
INTEGRATE CBI INSTRUCTIONAL UNIT IN EXISTING METHODS COURSE

INCLUDE CBI MODULES IN A PERFORMANCE-BASED TEACHER EDUCATION PROGRAM

USE THE COMPETENCY-BASED APPROACH IN A TECHNICAL COURSE

CONDUCT SPECIAL CBI WORKSHOPS FOR INSERVICE TEACHERS

INITIATE NEW COLLEGE COURSE DEALING WITH COMPETENCY-BASED VOCATIONAL INSTRUCTION



VOCATIONAL TEACHER EDUCATION LEADERS

TEACHER EDUCATION FACULTY

THE CENTER'S CBI PROJECT

VOCATIONAL TEACHERS [INSERVICE & PRESERVICE] IN CBI PROGRAMS

VOCATIONAL STUDENTS IN CBI PROGRAMS IN THE SCHOOLS

Appendix H

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